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ABSTRACT

This publication, volume 1 of 2, contains proceedings from a national symposium on recreation trends. Topics of the 25 papers in volume 1 include: selected trends in recreation activities; and recreation planning, policy, financing, equipment, organizational membership, and lands and waters. Papers are arranged in six sections: (1) Data-Deficient Planning: An Overview; (2) Trends in the Leisure Economy; (3) Facilitating Trends; (4) Trends in Policy and Influence; (5) Trends in Recreation Activities/Markets; and (6) Trend Measurement Problems. (JMK)

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PROCEEDINGS

1980 National Outdoor Recreation Trends Symposium

Volume I

U.S. Department of Agriculture, Forest Service
Northeastern Forest Experiment Station
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Sponsored by:

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USDI Heritage Conservation and Recreation Service

Recreation Working Group, Society of American Foresters

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FOREWORD

Most of us would probably endorse a one-year moratorium on meetings, conferences, conventions, workshops, and symposia. In fact, this planning committee was so reluctant to assemble another conference that it spent nearly 2 years identifying the needs and developing the program. When the rate of change is as great as it has been in outdoor recreation, conferences such as this one become essential. This is an exceptional conference because it focuses on that change, documents it, and attempts to determine what its future implications may be.

Ten years ago, a Forest Recreation Symposium was held at Syracuse, N.Y., for the purpose of "consolidating and synthesizing past research efforts in outdoor recreation." Even a hasty comparison of these proceedings with those from Syracuse suggests the enormous volume of research that has occurred over these 10 years. Equally apparent is the change in the kinds of research information that are available today; from the static descriptive and prescriptive studies of the late 1960's to examinations of trends, shifts, and changes in the outdoor recreation economy. Effective planning requires this dynamic view of outdoor recreation. Because planning, whether for corporate investment or public development, is a long-range activity, it needs information that goes beyond simple statements of "what is" into the realm of "what has been" and "what will be."

Statistical reporting is a critical function of government. Without this essential service, it would be difficult, if not impossible, to assess the state of the economy, the quality of health care, or the adequacy of public education. Price indexes, business slumps, new construction, pollution levels, production facts, and employment figures pop out of Washington bureaus onto boardroom conference tables with almost biologic regularity. Agriculture, mining, housing, manufacturing, wholesale and retail trade, doctors, dentists, educators, butchers, bakers, and even high school guidance counselors have more federally-sponsored statistics to plan with than do the providers of America's outdoor recreation opportunities. We attempt to plan the future of the Nation's recreation resources in the absence of facts about the present level and rate of growth of private investment in leisure industries. We define policy on the basis of out-of-date data and ideas about public participation in recreation activities. And, we invest scarce research dollars in "problems" which may not exist, or might at least look different if we had adequate statistics with which to view them. This symposium will not correct the situation. It can only serve to heighten your present uneasiness over the quantity and quality of available trend data. But we hope it will instill an urgency within you to demand better, more current, and more comprehensive statistics on outdoor recreation in America.

Good planning has been described as a two-step process. "First you figure out what is inevitable. Then you find a way to take advantage of it." In assembling this collection of speakers and topics, we have provided you with the best available information on, if not the inevitable, at least that which is highly probable and highly improbable. Step 2 -- how you take advantage of that information --is what recreation researchers will be monitoring in the years ahead.

WILBUR F. LaPAGE, Chairman
Program Committee

American Demographics, September 1979.
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THE 1980 NATIONAL

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OUTDOOR RECREATION TRENDS SYMPOSIUM

Held at the New England Center for Continuing Education
University of New Hampshire
Durham, New Hampshire
April 20-23, 1980

SPONSORED BY

Northeast Agricultural Experiment Stations, Project NE-100
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CONTENTS

DATA-DEFICIENT PLANNING: AN OVERVIEW

Social indicators and outdoor recreation: the forgotten sector

John D. Peine, Robert W. Marans, and Charles C. Harris 1

The role of futures forecasts in recreation: some applications in the third nationwide outdoor recreation plan

Meg Maguire and Dana R. Younger 19

Trend indicators needed for effective recreation planning--a statistical blueprint for the 80's

H. Fred Kaiser, and George H. Moeller ...27

TRENDS IN THE LEISURE ECONOMY

The growth of selected leisure industries

Elizabeth R. Owen 33

Trends in financing and availability of capital

Donald G. Schink 41

Trends in private and commercial recreation

Arlin Epperson 47

FACILITATING TRENDS

Travel Trends and energy

Thomas M. Corsi and Milton E. Harvey 59

Trends in state outdoor recreation from periodic to process planning: the Minnesota example

William H. Becker and George W. Orning ..71

Trends in land and water available for outdoor recreation

Lloyd C. Irland and Thomas Rumpf 77

TRENDS IN POLICY AND INFLUENCE

Trends in outdoor recreation legislation

George H. Siehl (Vol. II)

Trends in organizational memberships and lobbying

William R. Burch 89

Trends in public policies and programs

Gerald Purvis and Darrell Lewis (Vol. II)

TRENDS IN RECREATION ACTIVITIES/MARKETS

Skiing trends

Charles R. Goeldner and Stacy Standley..105

Hunting and fishing trends in the U.S.

J. John Charbonneau and James R. Lyons..121

Off-road vehicle trends

Garrell E. Nicholes.....................127

National boating trends

Albert J. Marmo 135

Trends in river recreation

Earl C. Leatherberry, David W. Lime and Jerrilyn LaVarre Thompson 147

Camping and RV travel trends

Gerald L. Cole and Wilbur F. LaPage 165

Trends in the market for privately owned seasonal recreational housing

Richard L. Ragatz.......................179

Trends in hiking and backcountry use

Edward L. Spencer, Herbert E. Echelberger, Raymond E. Leonard and Craig Evans 195

Trends in emerging and high risk activities

Robert G. White, Richard Schreyer, and Kent Downing 199

Trends in day uses of parks and forests

Joseph T. O'Leary, John Peine, and Dale Blahna 205

Trends in outdoor recreation activity conflicts

John J. Lindsay 215

TREND MEASUREMENT PROBLEMS

Trends or methodological differences?

Daniel J. Stynes, Malcolm I. Bevins, and Tommy L. Brown 223

The trend of measuring public use of the national parks

Kenneth E. Hornback 233

Data banks for recreation supply and participation

E. M. Avedon and S. L. J. Smith 243

SOCIAL INDICATORS AND OUTDOOR RECREATION: THE FORGOTTEN SECTOR[1]

John D. Peine
Robert W. Marans
Charles C. Harris[2]

Abstract.--Following a brief historical overview of the social indicators movement, outdoor recreation measures which can be considered as social indicators are discussed. Such indicators are largely derived from social surveys. Illustrative data from 53 such surveys are presented. Despite the availability of such data, there have been few attempts to adapt them as established indicators in the outdoor recreation field. Reasons for not considering the data as indicators are suggested. Finally, a number of parameters which might be used as social indicators in outdoor recreation in the 1980's are outlined.

WHAT ARE SOCIAL INDICATORS?

Although policy makers and planners are familiar with the concept of "social indicators," there is little consensus among them as to what constitutes a social indicator and how indicators are intended to be used. The ambiguity associated with the concept in part reflects the evolutionary nature of what has been referred to for more than a decade as a movement. The social indicators movement, however is not that new. In the late 1920's, President Hoover appointed a commission to report on the changing social conditions taking place in the United States. The results of that commission's efforts were published in 1933 and described social trends reflecting various aspects of life in the United States. In addition to the report, 13 separate monographs were produced, covering topics ranging from nutrition and health to recreation and leisure.

The movement, however, received its label in the mid-1960's with the publication of Raymond Bauer's widely publicized book, Social Indicators. The focus of Bauer's edited volume was on the development and use of social measures in assessing the state of society in relation to national goals. One influential chapter covered social systems accounting and called for the development of comprehensive models describing the structures of entire social systems.

In part as a response to the Bauer publication, the federal government issued Toward A Social Report in the late 1960's. The report, prepared by HEW, detailed the need for social indicators as a way of assessing the progress the country was making toward achieving societal goals. One part of the report focused on the compilation of descriptive statistics in a format such that they could be aggregated for summary purposes or disaggregated to allow for detailed analysis of sub-areas and subpopulations of the country. Another theme considered the collection of direct measures of welfare and the need to contrast them with the more readily available measures of government expenditures or other types of inputs. Implicit in this theme is the notion that measures of welfare should be expressed in terms of outputs and herein lies one of the central issues facing the social indicator movement today: that is, just how do we measure output?

This issue is brought home when reviewing the two government volumes, Social Indicators,

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[1] Paper presented at the National Outdoor Recreation Trends Symposium, Durham NH, April 20-23, 1980.

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1973 and Social Indicators, 1976. In the first volume, measures of welfare are expressed in terms of various statistics describing conditions of American life. Measures of longevity, mental retardation, crime, educational attainment and income obtained from various governmental records are typical of the material reported in the volume. It is not difficult to understand why there is a lack of consensus about social indicators when one considers these types of measures. On the one hand, they can be viewed as the direct measures of welfare called for in Toward a Social Report; on the other hand, they might be viewed as inputs by some who would argue that they do not present a complete picture of what is happening in the country.

In Social Indicators, 1976, the descriptive measures are presented once again, but also there is greater attention given to public perceptions of social conditions. In the social indicator movement, the distinction is made between these two types of indicators; one deals with the objective conditions of society while the other covers peoples' responses to these conditions. The distinction between objective and subjective indicators is reflected in much of the quality of life research conducted over the past decade. Some studies describe quality of life in a particular place in terms of its crime rate, its level of unemployment or the amount of air pollution, while others describe quality of life by the way people experience it and as reflected by their attitudes and behaviors. Thus, social indicators can be talked about in terms of social accounting, ways of monitoring social change and reporting social conditions or measuring the quality of life as people experience it.

While there is some agreement that social indicators however described are needed, the question of how indicators are and should be used is far from clear. Ideally, indicators in the form of social statistics could be used to guide decision makers in their deliberations. However, a systematic study of the use of Social Indicators, 1973 by federal bureaucrats shows that few make direct use of such data. (Caplan and Barton 1978)

AVAILABLE OUTDOOR RECREATION INDICATORS

Voluminous data are available on all facets of outdoor recreation. Providers of outdoor recreation opportunity have collected data on facilities, lands, programs and equipment sales. Additionally, information has been solicited from participants in outdoor recreation activities and the general public. Typical data from social surveys have included participation rates, use pattern descriptions, preferences for participation and constraints to participation. This paper focuses primarily on information solicited from such surveys.

By the 1970's, surveys dealing with outdoor recreation had become an integral part of the planning functions for all seven federal land managing agencies and all Statewide Comprehensive Outdoor Recreation Plans. A study of recreation surveys was conducted for the years 1970-77 as part of an unpublished analysis of the 1977 National Ourdoor Recreation Surveys. It revealed that various federal agencies and the majority of state governments, as well as commercial researchers, had conducted 65 major surveys oriented specifically to outdoor recreation. Approximately 650,000 people have participated in these surveys which carry a price tag in excess of 6 million dollars. Dozens more small-scale surveys have also been carried out. In total, these survey efforts have produced a wealth of information on outdoor recreation.

The national outdoor recreation surveys

Research in outdoor recreation came to the forefront early in the 1960's at a time when the concept of social indicators was gaining visibility. The Outdoor Recreation Resource Review commission (ORRRC) produced a series of reports which are, even today, unprecedented in their scope and comprehensiveness. Recreation data were presented on financing, behaviors, attitudes, management, and existing and potential resource supply. Unfortunately, these data have never been fully utilized as bench marks for establishing social trends.

In 1965, while the perspectives of ORRRC were still fresh, the newly formed Bureau of Outdoor Recreation (BOR) sponsored a national recreation survey which was a close approximation of the 1960 survey conducted for the ORRRC. According to its enabling legislation, the BOR was intended to be the federal focal point for recreation research and the collection of trend data. Hopes were high that the generation of social indicators for outdoor recreation was an established fact.

Unfortunately, the 1965 BOR survey never lived up to its research expectations. The data were never fully analyzed and only a small portion of the findings have been published. Data from this and the earlier ORRRC survey were soon lost and with them the opportunity to establish a trend line for outdoor recreation indicators. The 1965 survey experience had established a trend of sorts, in that subsequent national recreation surveys were sponsored by BOR/HCRS in 1970, 1971, 1972, and 1977. (BOR was renamed the Heritage Conservation and Recreation Service in 1977) None of these surveys have been thoroughly analyzed, very little has been published, and until recently, some of the data were unavailable.

An additional problem in establishing trends is that the comparability of those surveys is limited. A methodological summary of the four most comparable surveys sponsored by the BOR/HCRS is shown in Table 1. Participation rates shown in Table 2 illustrate the difficulty in comparing these survey results over time. That difficulty stems from variation in sampling techniques, activity names, length of recall for participation, and the circumstances of the participation (summer only, during type of trip, or year around). The 1972 survey provided an underestimate of activity participation relative to findings of the 1960 and 1965 surveys according to an analysis of the methodology of the first five national outdoor recreation citizen surveys (Stowell 1975). On the other hand, participation in the 1977 survey was an apparent overstatement for several activities in comparison to other contemporary national surveys. This discrepancy was probably due to a shift to data collection by telephone. Thus, although a series of national surveys was envisioned as providing trend data from which social indicators would evolve, it did not happen.

Other federally collected outdoor recreation data

Federal involvement in outdoor recreation research has been considerable. During the search for data comparable to the 1977 National Outdoor Recreation Survey, contact with 16 agencies representing six departments of the federal government uncovered 41 surveys conducted in the previous five years. This momentum for federal recreation surveys continues to build since all seven federal land managing agencies are presently planning or conducting new surveys.

Table 3 displays descriptive comparisons among a sample of federal surveys. Some surveys were conducted on site while others were of regional or national scope. A variety of questions has been asked and many survey techniques were applied. The opportunity to identify common data for several time reference points is limited, but on the other hand many questions have been asked more than once. Federal land managing agencies also have a wealth of descriptive data covering their resource areas. Social indicators on recreation opportunities provided by the federal government could be compiled easily if reporting standards for descriptive inventories were applied. Such standards have recently been adopted for reporting visitation to federal recreation areas (Federal Recreation Fee Program, 1978). The trouble with using federal visitation figures as a social indicator is that it is difficult and expensive to accurately collect them. As a result, reported visitation figures invariably are viewed with considerable skepticism.

State collected outdoor recreation data

The greatest volume of data concerning outdoor recreation behavior has been collected through surveys sponsored by state governments. Statewide surveys have been conducted by 43 states since 1970, including at least one during every year of that decade. These surveys are conducted as part of the Statewide Comprehensive Outdoor Recreation Plans which are required by BOR/HCRS for state participation in the Land and Water Conservation Fund. No attempt has ever been made by BOR/HCRS to encourage standardization of some key elements of these state surveys in order to expedite regional market analysis or suggest national trends. Unfortunately, the utilization of statewide surveys to help establish outdoor recreation trends has never been explored. More opportunity for coordination continues to be lost as 18 state governments are now in the process of planning or conducting new outdoor recreation surveys. Table 4 illustrates descriptive comparisons among 25 statewide outdoor recreation surveys. In every state the primary theme is the establishment of participation rates which are in turn applied to some demand-supply-needs analysis. As is the case with the BOR/HCRS surveys, most of the time spent with the respondents has been devoted to obtaining information for the establishment of participation rates. After all this effort, no consensus exists as to whether these rates are accurate or whether when collected over time, they represent trends. The paradox is having the public sector collect such a formidable mountain of data without being able to describe basic behavioral trends. It is out of this kind of sheer frustration that this conference is being held here today.

The state governments typically maintain extensive inventories of recreation related facilities, lands and programs allowing definitive analyses of geographic distribution and accessibility. On the other hand, the detail of information collected and reporting methods are variable and thereby hinder regional analysis and make national analysis virtually impossible. Encouraging progress in coordinating the collection and analysis of statewide surveys and inventory data has been initiated in the northwestern, northeastern, and southeastern sections of the country (Recreation Data Subcommittee, 1975). If this trend toward consolidation of methodology continues, the potential for utilizing such information to establish trend data is most promising.

Commercially collected outdoor recreation data

Unquestionably, the best trend data in outdoor recreation activity available today is provided by the commercial sector. Descriptions of some commercial sector surveys are presented in Table 5. These surveys are generally restricted to reporting incidents of activity participation. The Neilsen Company has replicated its 1973 outdoor recreation survey twice (Table 6); the resulting trend data are probably the most accurate available.

Similarly, manufacturers of outdoor recreation equipment keep records of unit sales. Such data reflect public interest and involvement in many recreation activities. For example, manufacturers were the first to report that the boom in tennis and bicycling had tapered off and that the boom in snow skiing is still strong.

COMMON LIMITATIONS TO ESTABLISHING INDICATORS

Problems arise in attempting to compare results among surveys which are conducted for different purposes and therefore are not exact replications of each other. For instance, the "universe" or population upon which the surveys are based varies considerably according to each survey's purpose. Some surveys sample a cross section of all people within a geographic boundary such as a park, a state, or a region of the country; others may focus on the population of the entire nation. Additionally, surveys may focus only on certain segments of the population such as those people participating in specific activities such as boating, hunting, camping, or fishing.

Sampling methodologies reflect vastly different study purposes and circumstances of time, money, personnel and expertise. Questionnaires are administered in person, via telephone or by mail. Combinations of techniques such as the handout, mail back format are becoming more common. Rarely are rigorous tests made on the effect specific techniques have on the accuracy of the sample drawn. Sample size also varies ranging from 600 to over 20,000 respondents. Data gathered from most surveys are weighted using various schemes to correct for sampling bias. Often these procedures are complicated and not well documented, making data manipulation potentially more difficult as time passes and as familiarity with the process fades.

Common themes are followed in virtually all outdoor recreation surveys, but it is rare to find questions relating to those themes phrased in the same manner. For example, the number of recreational activity names included in various surveys ranges from 10 to more than 40. What appears as a single activity in one survey may be divided into two, three, or even four activities in another. Definitions of activities also vary among surveys; for instance, is "camping by tent" the same as "primitive camping?"

Another difficulty concerns the variations in time frames used in different surveys to determine from the respondent whether or not participation has taken place. For example: "Have you been camping in the last (seven days, three months, year)?" The longer the recall period, the less likely the response will be accurate.

Data are reported in a variety of formats. Survey reports vary from simple frequency counts on response to the publication of computer printouts of cross tabulations with many statistical tests. Activity participation may be expressed as a simple percentage of the total population, or as specific activity days or participation occasions, all of which may be presented within varying categories of frequency of participation. Tremendous variation also occurs in the way standard socioeconomic factors are categorized. Income, for instance, may be grouped anywhere from three to ten categories.

Limitations associated with comparisons among recreation inventory data sets stem from similar concerns: lack of standard definitions, levels of detail in data description, and fragmented reporting of data.

USES OF EXISTING OUTDOOR RECREATION DATA

Despite the previously stated difficulties in data comparison, there is enormous potential represented by the wealth of unminded data which have been collected.

As the result of the large number of surveys and a large variety of questions asked, most topics of inquiry have been covered in the work. The most obvious example of opportunity for comparative data analysis is activity participation rates. All state and commercial surveys include some type of participation data as do several of the federal surveys. Such a comparative analysis of activity participation rates has recently been published by Dr. Malcolm Bevins of the

University of Vermont who devised trend lines for participation in several activities over time.

Other broad brush trends in outdoor recreation participation can also be portrayed. Trends in the demographic descriptions of recreation participants can be derived showing shifts over time in who is involved in each activity (O'Leary and Peine 1980). Examples of other categories of questions commonly asked are portrayed in Tables 1, 3, and 4. An example of the type of information gleaned from similar questions is portrayed in Table 7 which displays questions on the effect on recreation of gasoline price and availability which have been included in six surveys since the gasoline shortage of 1973.

In order for existing data to be more actively utilized in the policy arena, two conditions must be met. First, the data must be more readily available for analysis and, second, researchers must become more involved in data interpretation for specific policy issues. Significant progress on the accessibility front has been made by the establishment of the National Leisure Archive at the Institute of Social Research, University of Michigan. To date, 30 data sets from questionnaire type surveys on outdoor recreation, sponsored by federal and state agencies, are on file and most new surveys in the planning stages will be entered when the data are available. On the interpretation front, the active use of data from the HCRS national outdoor recreation surveys by researchers at 80 universities around the country constitutes a breakthrough in analysis. It is hoped policy makers will more actively seek out the research community to interpret existing data in terms of specific topical issues on outdoor recreation.

POTENTIAL SOCIAL INDICATORS FOR OUTDOOR RECREATION

Still another, and perhaps the most significant reason indicators for outdoor recreation have not been established in the past is that there is no simple, agreed upon way of measuring the social benefits derived from outdoor recreation. Such benefits from participation, for instance, could stem from personal rewards such as satisfaction from mastering a physical skill, greater physical fitness, relief from stress, a sense of adventure, improved self concept, greater worker productivity, greater family solidarity, change of pace in daily routine, or communing with nature. Obviously, the list could go on.

From this myriad of potential candidates for social parameters in outdoor recreation, which would be the most useful to monitor over time? This difficult question hits at the crux of the dilemma. It is doubtful that social scientists and public policy makers will ever find an answer to such a question through consensus of opinion.

This next section of the paper briefly reviews selected parameters in terms of how extensively data have been gathered on them, how they have been applied to policy formulation, and an opinion as to their future utility in the rapidly changing world of outdoor recreation. This is by no means meant to be an all inclusive listing but rather examples of useful parameters.

Societal changes affecting outdoor recreation include an increase in discretionary time, changing attitudes toward the work ethic and leisure activity, changing family structures, emerging outdoor recreation participation by women and racial minorities, constraints on participants due to high inflation and energy limitations and the growing constraints on public providers of outdoor recreation opportunity.

Indicators we have considerable experience measuring

Considerable data are available for the following outdoor recreation parameters:

Participation rates. As indicated earlier, participation rates are the most commonly collected outdoor recreation parameter and rate comparability among surveys is severely limited by variations in survey methodology, activity names, lengths of recall, unit of measure and context of participation. There is considerable popular interest in participation rates. A commonly asked question is "How many Americans are campers, etc.?" Unfortunately, since participation rates usually are very general in context and their accuracy questionable, their utility in the policy arena is quite limited. Hunting, fishing and camping, for example, are frequently used activity names which are not tied to any particular resource circumstance. Also, participation rates are frequently misinterpreted. Many planners have equated these rates with recreation "demand" in the context of a planning demand-supply-needs analysis. Participation rates are simply a description of consumption which may reflect supply more than public preference. Also, many have attempted to generate predictive "demand" models incorporating resource supply and demographics to predict participation, but the reliability of such models is highly questionable. As a result, participation rates are much more likely to be found in the introductory remarks of outdoor recreation plans than in discussions at meetings on outdoor recreation policy. Measurement of participation rates will most likely endure in the future due to continuing public curiosity about them. Their interpretation may be most useful when tied to socioeconomic factors to show shifts in outdoor recreation interest across age, sex, education, race and income parameters.

Resource availability and utilization. Most recreation studies and plans incorporate inventories of available resources. Federal, state and local land managing agencies maintain resource inventories. Much effort in most outdoor recreation studies is devoted to the compilation of such information. Also, outdoor recreation visitation records at land management units are usually kept. More and more agency managers are expanding the scope of such information to include more specific information on visitor use patterns, preferences and dissatisfactions. The format of such data bases is quite complicated and the list of areas extensive. Also, a variety of units of measurement are applied. As such, the information is not easily translated into definable parameters of resource availability. The usual application of such material is to portray the geographic distribution and diversity of resource opportunity. While it may be doubtful that a universal method of accounting for resource supply will ever be adopted nationally, efforts are being made by federal land managing agencies to develop and adopt a mutually agreed upon system for inventorying and classifying recreation resources. Such systems are needed for state, local and private lands as well. Until these systems are developed, the portrayal of "supply" as a social indicator will continue to be limited to a rather localized perspective.

If the growth of park systems continues to decline as the population becomes more concentrated and travel more restricted, more will have to be learned about the maximum recreational utility of close to home resources. More emphasis will surely be placed here in the 1980's.

Recreational travel. As portrayed in Tables 1, 3, and 4, several recent surveys have included information on travel to participate in recreation activities. Distance traveled, mode of transportation, nature of the trip and expenses incurred have all been repeatedly asked. If national indicators on travel were to evolve, they would most likely be generated by the U.S. Travel Bureau utilizing their repeated recreation travel study. If energy shortages and inflation continue and there persists a dramatic drop in National Park attendance and the sales of recreation vehicles, this parameter may be one of the most important to monitor in the 1980s.

Willingness to pay. Recreation benefits have been estimated by measuring professed willingness to pay for access to particular facilities or areas. Out of pocket expenses to pursue activities have also been monitored in surveys and equated to estimates of the public good. The unit of measure in these instances is the almighty dollar, the most universally accepted measure of public good. The degree to which willingness to pay questions can really predict future behavior is debatable as is the appropriateness of money to represent the multifaceted public good generated from outdoor recreation. However, given today's constraints on public providers of outdoor recreation opportunity, the importance of such information is obvious. Pay as you go recreation will probably become a more prominent principle of public policy in the 1980s. More data on this topic will sure be collected.

Satisfaction with experiences. Several surveys have measured people's satisfactions with their recreational experiences. This approach to measuring social good has been more effective at identifying the usually low percentage of malcontents than differentiating the subtleties of degrees and types of satisfaction. Interpretation of such findings are usually abstract, subjective, and not a particularly compelling argument in the policy arena. However, research linking subjective reports of satisfaction with various social, environmental and management elements of the recreation experience would aid managers in their planning efforts. Perhaps more importantly, subjectively reported satisfactions need to be linked to objectively determined social benefits of recreation. More research is needed before activity satisfaction can be described in convincing terms to the practitioner.

Constraints to participation. Some surveys attempt to identify constraints to participation through direct questioning. Although results provide greater insight into needs, the questions usually afford such general response that the need is at best obscure. For example, the 1977 national outdoor recreation survey included such a question (see Table 8). As vague as the results may be, this is the type of question which is more likely to reflect a more comprehensive perception of need than could ever be generated simply by a study of participation rates. In the future, this line of questioning will have to evolve so that needs as perceived by the public can be more fully understood.

Indicators We Have Little Experience Measuring

The following outdoor recreation parameters would provide valuable insight for the future but, as yet, we have little experience collecting such information.

Unmet expectations for participation. People frequently have preconceived expectations about recreation activity or areas which may relate to any one of a number of things such as scenery, wildlife, cleanliness, condition or type of facilities or type of fellow recreators. As conditions change at parks and recreation areas, the clientele using the areas may change as well. Increased crowding or a change in the type of people using an area, for instance, may go beyond the social tolerance of some people who then no longer visit the park. Their experience expectations were not met by conditions at the area

Measuring such a parameter is most difficult. Attempts at asking point blank questions on unmet expectations has tended to yield superficial results which most likely do not reflect the depth of respondent opinion, but the concept should be pursued in order to assess the preferences of both participants and non-participants.

Benefits from participation. If the constraints on public agencies continue in the 1980s, outdoor recreation will be in greater competition with other social services for public funds. In such an environment, the ability to articulate the variety of benefits derived from outdoor recreation activity made possible by the public sector would be most advantageous. As previously discussed, much effort has gone into estimating recreation benefits. Many approaches have been utilized but the results are frequently challenged. Benefit analyses have focused on quantitative parameters such as a visitor occasions or dollars expended. A challenge to the research community is to define subjective parameters which address both the more personal rewards of participation and the community-wide benefits afforded by recreation opportunity. If such subjectively based parameters were adopted and measured over time, powerful indicators would be likely to evolve.

Substitution of activity environs. If in the 1980s, the mobility of the population continues to decrease while the interest in outdoor recreation continues to expand, the need will grow for developing substitute environments for the outdoor recreation activities which today require substantial mobility for participation. Such insight would necessitate some appreciation for dimensions of satisfaction derived from participation and an assessment of whether or not those dimensions are transferable from one physical environment to another. Although substitution of recreation environments has not received much attention in the research community, there are indications that it will receive greater attention in the 1980s.

Roles of the public and private sectors. As the decade begins, providers of recreational opportunities from the public and private sectors are approaching the issue from different perspectives. The public sector, on the one hand, is faced with an ever increasing fiscal constraint and thinking and planning smaller. The leisure industry, on the other hand, is picked to be one of the major growth sectors of the 1980s and is thinking big. Equipment manufacturers, recreation facility developers, and near-home tourist attractions are in an expansionary mode. Such a situation would suggest that a shift in some roles will occur between the public and the private sectors. The monitoring over time of such shifts vis-a-vis facility and program inventories could prove to be useful in the policy arena.

ESTABLISHING SOCIAL INDICATORS IN OUTDOOR RECREATION

One must admit that the picture painted here is a sobering one at best. We have concluded that despite the collection of an immense amount of data over the last two decades, there is no clearly identified set of indicators in the outdoor recreation field. Circumstances which have contributed to this situation include the lack of consistent procedures and types of data collection over time, inadequate reporting of survey results, the difficulties in accessing existing data sets, and the limitations of past efforts to interpret data in terms of key policy issues. Furthermore, the broad perspective of potential human benefits derived from outdoor recreation experiences makes it most difficult to determine an all-inclusive set of measures covering this social good.

While identifying the problems that have impeded the development of an appropriate set of social indicators has been fairly straightforward, making meaningful suggestions for establishing useful indicators of outdoor recreation may be more difficult. As a way of expediting the establishment of such indicators, we offer the following suggestions:

Data standardization

Standardization should be introduced into recreational data collected by the public sector.

Collecting a standard set of core data as part of inventories and surveys would aid in making comparisons between studies and among studies over time. Appropriate candidates for standardization might include the names of recreational activities and facilities and specific demographic characteristics of respondents (participants and nonparticipants). For surveys, an index of commonly asked questions and how they have been phrased would be most helpful. Steps toward implementing such a goal have been initiated by a task force within the U.S. Department of the Interior charged with the establishing standard data elements for outdoor recreation surveys.

Data access

Recreation data should be made more accessible. As mentioned earlier, such an effort has been established for recreation surveys through the development of the National Leisure Archive at the University of Michigan's Institute for Social Research. To date, 30 data sets have been compiled in the archive. These sets have been made available by agencies of the federal government and various state governments. The data archive at the Institute is part of an inter-university consortium which has 240 member institutions world wide; these institutions have free access to the data. A similar type of mechanism needs to be instituted for recreation inventory data.

Data interpretation

Federal and state outdoor recreation policy makers should exert less energy on developing major reports on recreation studies and surveys and place greater emphasis on the interpretation of existing data vis-a-vis specific policy issues. The academic and research community should be called upon more often to contribute their expertise to this process. If policy makers begin to actively seek out information from existing recreation data, the most useful parameters to the policy arena will eventually surface. This process must take place if usable recreation indicators are to emerge. There is obviously no simple mechanism to realize such a goal, so the process will most likely evolve at an undetermined rate through the concerted efforts of inspired individuals.

Define conceptual framework

The research community should address the problem of developing a conceptual framework for categorizing social indicators and for evaluating their importance. Recreation researchers and practitioners come from many disciplines and organizations. Although this diversity has enriched the field, it has contributed to a lack of organizing principle for developing either a unified body of knowledge of social indicator measures or a methodology for collecting data. Development of such a framework would provide a focal point for future research efforts.

Identify key indicators now

At this time, we feel it is appropriate to offer a challenge to participants of this conference. We believe a special effort can be made to identify one or two key social indicators for outdoor recreation which would be systematically monitored in the future. Very specifically, we suggest that members of this conference "take the bull by the horns" and identify one or two line items for the "Mid-Decade" census and forward such recommendations for consideration by the Bureau of Census. At the very least, such an initiate will awaken those in the social indicator movement as well as ourselves to the fact recreation and leisure are important aspects of life which are influenced by public policy and which need to be understood over time.

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Key to Tables 1, 3 and 4

- Date - Year data was gathered
- Agency (Table 3 only) - Federal agency sponsoring survey
    - BLM - Bureau of Land Management
    - BLS - Bureau of Labor Statistics
    - BOC - Bureau of the Census
    - COE - U.S. Army Corps of Engineers
    - DOT - Department of Transportation
    - FWS - U.S. Fish and Wildlife Service
    - NPS - National Park Service
    - TVA - Tennessee Valley Authority
    - USCG- U.S. Coast Guard
    - USFS- U.S. Forest Service
- Administration (Tables 3 and 4 only) -
    - I - Work conducted in-house
    - C - Work contracted to a consulting firm
- Universe Sampled(Tables 3 and 4 only) -
    - N - Nationwide sample of general population
    - O - On-site sample for a resource area
    - R - Regional sample of general population
    - S - Statewide sample of general population
    - T - Tourist sampled from out-of-state
- Cost - Estimated cost to conduct survey
- Sample Size - Number of persons responding to the survey
- Sample Techniques -
    - D - Diary questionnaire
    - H - Household interview
    - M - Mail questionnaire
    - P - Personal interview (face to face)
    - T - Telephone interview
- Subject (Table 3 only) - Key words of subject covered or of the resource area name.
- Age Range (Table 1 only) - Minimum age of respondent
- Response Rate (Table 1 only) - % of people contacted that participated in the survey.
- Geo. Reliability - Geographic reliability
    - C - data stratified by county
    - R - data stratified by region
    - S - data for statewide only, not stratified
- # Activities - Number of recreational activities included in the questions asked.
- Length of Recall - Length of past time respondent is asked to recall activity participation.
- Period Conducted (Tables 1 and 4 only) - months that data was collected.
- Question Content - Amount of survey instrument devoted to subject area:
    - 0 - not included in survey
    - 1 - briefly referred to in survey
    - 2 - subject referenced by at least 2 questions
    - 3 - subject major emphasis of survey

TABLE 1 - NATIONAL OUTDOOR RECREATION SURVEYS UTILIZED IN THE NATIONWIDE PLANNING PROCESS

Date	1960	1965	1970	1971	1972	1977*	1977**
Sample Size	3,817	7,194	26,450	3,258	4,029	4,029	13,729
Sample Technique	P	P	M	P	T	T	P
Age Range	12+	12+	9+	10+	12+	12+	12+
Response Rate	89%	91%	78%	81%	54%	54%	95%
Period Conducted	Sept.	Sept.-Oct.	Nov.-Dec.	Oct.-Nov.	Sept.-Oct.	June	Feb.-Nov.
# of Activities	20	28	14	11	31	30	30
# of Activities Strictly Comparable to 1977	15	20	5	5	18	--	--
# of Activities Roughly Comparable to 1977	5	6	7	4	12	--	--
Length of Recall	Summer	Summer	1 yr.	1 yr. except vacation	1 yr.	1 yr.	1 yr.
Question Content:							
Activity Participation	3	3	3	3	0	3	3
Satisfaction	1	1	0	2	0	3	3
Location of Participation	1	1	0	1	1	3	3
Transportation	1	1	0	0	1	1	1
Length of Stay	1	1	0	0	1	0	3
$ spent	1	0	0	0	1	0	0
Recreation Equipment	1	0	0	1	0	0	0
Deterence	0	0	0	0	2	3	3
Policy	0	0	0	0	0	2	2
Demographics	2	1	1	2	2	3	3

* National Outdoor Recreation Survey of the general population

** National Outdoor Recreation Survey of recreation on Federal lands

Source: Unpublished Report on the 1977 National Outdoor Recreation Survey

TABLE 2 ACTIVITY PARTICIPATION RATES FROM NATIONAL OUTDOOR RECREATION SURVEYS (PERCENT PARTICIPATION)

Activity	Summer Rates			Annual Rates
	1960	1965	1972	1977*
Picnicking	53	57	47	72
Driving for pleasure	52	55	34	69
Sightseeing	42	49	37	62
Swimming - Pool	45	48	18	63
Other			34	46
Walking for pleasure	33	48	34	
Playing outdoor games or sports	30	38	22	56
Golf		9	5	16
Tennis		6	5	33
Fishing	29	30	24	53
Attending outdoor sports events	24	30	12	61
Other boating	22	24	15	34
Bicycling	9	16	10	50
Nature walks	14 **	14	17	
Bird watching		5	4	
Wildlife and bird photography		2	2	
Attending outdoor concerts, plays	9	11	7	41
Camping - Developed	8	10	11	30
Wilderness			5	21
Horseback riding	6	8	5	15
Hiking	6	7	5 ***	28
Water skiing	6	6	5	16
Canoeing	2	3	3	11
Sailing	2	3	3	
Mountain climbing	1	1		
Visiting zoos, fairs, amusement parks			24	73
Off-road driving (motorcycles/other vehicles)			5/2	26
Other activities category	5		24	

* 1977 National Outdoor Recreation Survey by telephone
** Includes bird watching and photography
*** Includes mountain climbing

Source: Stowell, 1975, p. 104, for summer rates.
Unpublished Report on the 1977 National Outdoor Recreation Surveys for annual rates.

TABLE 3 - OTHER FEDERAL SURVEYS RELATED TO OUTDOOR RECREATION

GENCY	BLM	BOC	BOC	BLS	COE	COE	COE	DOT	FWS	NPS	NPS	NPS	TVA	USCG	USFS	USFS
ate	1977	1977	1977	1972-1974	1973	1976	1976	1975	1975	1975	1976	1975	1976	1974	1970	1975
dministration	C	I	I	I	I	C	I	C	C	C	I	I	I	I	I	C
ost (X 1000)	9	4000		1500		87			985	170	5.5	20				
ubject	Desert Plan	Long Travel	Short Travel	Vacation Cost	Nine Site Quality	McClellan Kerr	Urban Use	Access	Hunters Fishers	Smoky Mtns.	Sequoia Kings Canyon	Yosemite	Land Between Lakes	Boating	Wilderness	Campers
niverse Sampled	California	N	N	N	0	0	0	Boston Atlanta	N	0	0	0	0	N	0	N
ample Size (X 1000)	1	18		64	3.3	22	.8	2	127	15	1.2	1.6	7.6	24	2.7	2.2
ample Technique	P	P	P	P,T	H,R	P	P	T	T,M	T,P	P,S	H,M	P	T	P	T
uestion Content:																
ctivity articipation	3	0	0	0	2	2	2	0	2	3	1	2	3	2	2	2
atisfaction	1	0	0	0	3	0	0	0	1	2	0	0	0	0	2	1
ocation of articipation	0	3	3	1	0	1	0	2	0	3	0	2	0	0	0	[illegible]
ransportation	0	3	3	1	0	2	0	2	0	0	0	1	0	0	0	0
ength of Stay	2	2	0	0	0	1	2	0	1	1	1	1	2	0	1	0
Spent	0	0	0	3	0	3	0	0	3	1	0	1	0	0	2	0
ecreation quipment	0	0	0	0	0	2	0	0	0	0	1	0	0	3	1	3
eference	2	0	0	0	3	2	0	3	2	1	[illegible]	2	0	0	3	2
olicy	3	0	0	0	0	0	2	0	1	0	3	3	1	0	3	2
mographics	0	2	2	0	2	2	1	1	2	2	1	2	1	1	1	1

urce: Unpublished report on the 1977 National Outdoor Recreation Surveys

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E 4 cted Statewide oor Recreation eys	Arizona	Colorado	Delaware	Florida	Georgia	Hawaii	Illinois	Indiana	Kentucky	Maine	Maryland	Michigan	Missouri
	1977	1974	1978	1975	1976	1974	1977	1976	1977	1977	1978	1976	1973
istration	C	I,C	I,C	C	I	C	C	C	C	C	I,C	I	C
t (X 1000)	41	32	30	34	50	43	145	13	25	16	45	79	60
rse Sampled	T,S	T,S	S	T,S	S	S	T,S	S	S	S	S	S	S
e Size (X 1000)	38	9	16	2.5	2.4	5	10	5.6	5	1.5	6	18	12
Reliability	C	S	C	R	R	C	R	R	R	C	C	R	R
e Technique	P	T	P	P	P	P	T	M	M	T	T,M	T	T
ivities	40	56	25	24	53	20	18	24	30	42	30	Open Ended	36
h of Recall	4 mo	1 yr	1 yr	1 yr	1 yr	1 mo	1 yr	1 yr	1 yr	1 yr	1 yr	2 wk	1 yr
Conducted	Jan-Oct	Four Season	June July	Aug-Sept.	July-Aug.	June-Aug.	Oct.-Jan.	Sept-Dec.	July	Jan-March	July-Jan.	Summer	July-Aug.
on Content:													
ty ipation	3	3	3	3	3	3	3	3	3	3	3	3	3
action	1	0	1	0	0	0	0	1	0	0	1	0	0
on of ipation	0	0	2	1	1	1	1	1	1	1	2	2	0
tation	2	0	1	0	0	0	0	0	0	0	1	1	0
of Stay	1	0	0	1	1	1	1	1	0	1	2	0	0
	0	0	2	0	0	0	0	0	0	0	0	1	0
tion ent	1	0	2	0	0	0	0	0	0	1	1	0	0
ce	1	0	2	0	0	0	0	2	0	0	2	0	0
	0	0	2	0	0	0	1	0	1	2	1	3	0
phics	2	1	2	1	2	0	2	1	1	2	2	1	1

E 4 cted Statewide oor Recreation eys	Nebraska	New Jersey	New Mexico	N.Y. (Tri-city only)	Ohio	Oregon	Oregon State Parks	Pennsyl-vania	Rhode Island	S. Dakota	Utah	Washington
	1978	1976	1975	1976	1973	1975	1975	1974	197[illegible]	1974	1977	1975
istration	C	C	C	I,C	C	C	I	C	C	C	C	C
t (X 1000)	6	80	15	30	130	6	20	130	125	33	25	125
rse Sampled	S	T,S	S	R	S	S	T,S	S	S	S	S	S
e Size (X 1000)	2	2.6	2.6	3	5.5	2	22.	9	2	4.5	3.6	4
Reliability	R	C	R	C	R	C	To Site	S	R	R	R	R
e Technique	T	T,P	T,P	T	M	T	M	T	M,P	M	D	T,M
ivities	27	56	40	13	21	22	14	19	18	24	72	81
h of Recall	1 yr	1 yr	1 yr	3 mo	1 yr	1 yr	per visit	1 yr	D	1 yr	1 yr	D
Conducted	April	Aug.	May-June	Aug-Sept.	Winter Spring	Sept.	Summer	July-Sept.	Four Season	Summer Fall	Four Season	Four Season
on Content:												
ty ipation	3	3	3	3	3	3	1	3	3	3	3	3
action	2	0	1	2	2	1	1	1	1	0	0	0
on of ipation	0	1	1	1	1	1	2	1	1	0	2	2
tation	0	0	0	0	1	0	1	2	1	0	0	0
of Stay	0	1	1	0	0	0	1	1	1	0	1	1
	0	0	0	1	0	0	1	0	1	0	0	0
tion ent	1	0	0	0	0	0	1	1	2	0	0	0
ce	0	0	1	2	2	0	0	1	1	0	0	1
	0	0	0	0	2	0	3	1	0	0	0	0
phics	2	1	1	2	1	1	1	2	2	1	2	1

Unpublished report on the 1977 National Outdoor Recreation Surveys

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TABLE 5 - COMMERCIAL OUTDOOR RECREATION SURVEYS OF THE 1970's

	New York Zoological Society	Hawes, Blackwell Talarzyk	National Opinion Research Center	Nielsen	Nielsen	Sindlinger	Nielsen
Date	1970	1972	1973	1973	1976	1977	1979
Universe	N	N	N	N	N	N	N
Sample Size	944	1,015	692	9,600	9,600	4,616	9,600
Sample Technique	P	M	P	T	T	T	T
Length of Recall	1 year	1 year	Last month	From time to time	From time to time	Last week	From time to time
Number of Activities	5	15	12	23	27	28	30

Source: Unpublished Report on the 1977 National Outdoor Recreation Surveys.

TABLE 6 - Participation Trends From Neilson Surveys

(RANKING OF POPULARITY OF PARTICIPATION IN SPORTS MEASURED
1979 vs 1976 vs 1973 Sports Participation Surveys)

Rank	Sport	projected individual participants (000) 1979	% change in projected participants 1979 vs 1976	projected individual participants (000) 1976	% change in projected participants 1976 vs 1973	projected individual participants (000) 1973
1	Swimming	105,441	+2%	103,503	-3%	107,191
2	Bicycling	69,810	-7%	75,015	+14%	65,613
3	Camping	60,300	+4%	58,102	+7%	54,435
4	Fishing	59,275	-7%	63,901	+4%	61,263
5	Bowling	43,330	-2%	44,434	+16%	38,218
6	Boating	37,920	+6%	35,230	+8%	32,629
7	Jogging/Running	35,727	*	*	*	*
8	Tennis	32,271	+10%	29,201	+45%	20,158
9	Pool/Billiards	31,937	-11%	35,805	+9%	32,920
10	Softball	28,458	+4%	27,268	+3%	26,362
11	Table Tennis	26,908	-16%	32,215	-4%	33,501
12	Roller Skating	25,359	*	*	*	*
13	Basketball	24,048	-7%	25,818	+17%	22,129
14	Hunting	19,711	-4%	20,480	+2%	19,997
15	Ice Skating	18,924	-26%	25,772	+4%	24,875
16	Water Skiing	16,922	+15%	14,681	+5%	14,021
17	Golf	15,897	-4%	16,568	-3%	17,025
18	Snow Skiing	15,397†	+40%	10,999	+42%	7,721
19	Baseball	15,039	-4%	15,670	+3%	15,216
20	Football	14,300	-4%	14,911	+5%	14,247
21	Racquetball	10,654	+283%	2,784	*	*
22	Motorbiking	10,511	+8%	9,734	-14%	11,339
23	Sailing	8,652	+19%	7,271	+4%	6,978
24	Snowmobiling	8,628	-6%	9,204	+19%	7,753
25	Soccer	6,530	*	*	*	*
26	Handball	5,578	+1%	5,546	*	*
27	Archery	5,529	+1%	5,477	-6%	5,847
28	Paddle Tennis	2,431	-6%	2,577	*	*
29	Ice Hockey	1,668	-38%	2,669	-18%	3,263
30	Platform Tennis	405	+120%	184	*	*
	Total U. S. Population	214,958	+2%	210,019	+2%	205,950

*Not measured in 1973/1976.

†Includes downhill and cross-country skiers.

Source: News Release By The Neilson Company

TABLE 7 - A COMPARISON AMONG SURVEYS OF THE EFFECT THAT GASOLINE PRICES HAVE HAD ON OUTDOOR RECREATION

Year	Survey and Question	Percent
1974	State of Ohio How important is the cost of gasoline in your participation in outdoor recreation?	47% very important
1975	COE at McClellan Kerr site How has the price of gasoline (shortage) affected your recreation related travel plans? (1975 compared to 1974)	29% fewer trips 28% shorter trips
1976	State of Indiana Has energy or economic changes during the previous year affected your outdoor recreation involvement? How?	38% yes and of those... 59% fewer trips away from home 32% closer to home 29% stopped participating in some activities
1977	State of Arizona (Has) the increase in price of gasoline over the past several years affected how much your family uses (gasoline consuming) equipment for recreational purposes?	44% much or a little less use
1977	HCRS General Population Survey Has the present price of gasoline caused you to take shorter trips for outdoor recreation activities?	49% yes
1978	State of Maryland Has the present price of gasoline caused you to take shorter trips than you normally would for outdoor recreation activities?	42% yes

Source: Unpublished Report on the 1977 National Outdoor Recreation Survey

TABLE 8 - REASONS PREVENTING USE OF PARKS OR RECREATION AREAS

(percent)

Reason	Type[1/]	General Population -	Federal Estate Population =	Percent Point Differe
Lack of time	P	52	52	0
Area too crowded	A	43	40	3
Lack of money	P	37	24	13
Lack of information	A or P	32	12	20
Recreate at residence	P	30	4	26
Area not convenient	A	29	10	19
Area polluted	A	25	8	17
Lack of interest	P	22	4	18
Personal health	P	21	6	15
Area poorly maintained	A	20	10	10
Lack of transportation	P	20	8	12
Area safety problems	A	19	4	15

Note: 1/ P = Personal situation
A = condition perceived for Area

Source: Unpublished report on the 1977 National Outdoor Recreation Survey

THE ROLE OF FUTURES FORECASTS IN RECREATION: SOME APPLICATIONS IN THE THIRD NATIONWIDE OUTDOOR RECREATION PLAN[1]

Meg Maguire and Dana R. Younger[2]

Abstract. -- This paper provides a quick glimpse into the theoretical applicability and importance of futures forecasting techniques in recreation policy planning. The paper also details contemporary socioeconomic trends affecting recreation, current recreation participation patterns and anticipated social changes which will alter public recreation experiences as developed in the Third Nationwide Outdoor Recreation Plan.

OVERVIEW OF FUTURES FORECASTING TECHNIQUES AND RECREATION

One of the best ways of discerning meaningful trends in recreation is through use of the techniques collectively known as futures research. Trend anaylysis specifically and futures research generally are important instruments to make policymakers aware of change and which ultimately help us deal creatively with change. However, the value to be derived from application of a futures prespective to recreation will depend on the degree to which it is possible to anticipate future events and also, the extent to which it is possible to respond to new circumstances. If a society can clearly map out the future, but cannot plan for or react to that future's environment, then it is debatable whether information about the future is of much value.

Where there is a slow rate of change between the past and the future, society can maintain relatively rigid mechanisms and can largely ignore the future. In such situations, dislocation costs can be spread over a lengthy period of adjustment. As we enter the 1980's, we find ourselves ina situation where the rate of political, technological and cultural change in the world is quickening, and the future is placing its assertive demands on the present. We are entering a period of profound social change which affects recreation as well as the rest of the fabric of American society. The present recreation picture is changing rapidly and future patterns are likely to be equally divergent. The ability of our society to adapt to meet these new social needs hinges not so much on sophisticated technological innovation as on institutional and societal innovation.

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[1] Paper presented at the National Outdoor Recreation Trends Symposium, Durham, NH, April 20-23, 1980.

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In order for futures research in parks and recreation to have any impact, it must succeed in re-orienting decisionmakers away from short-term, reactive planning. Most decisionmakers place highest priority on those factors which relate to the immediate consequences of their actions while ignoring long-term consequences. Herbert Kahn (1967), perhaps the dean of futurists, suggests that the objectives of futures research should be, "...to put policy-makers in a position to deal with whatever future actually arises; to be able to alleviate the bad and exploit the good."

While we may not agree with Epicurus that, "No means of predicting the future really exists," we must recognize that our tools of prediction are crude at best. Nevertheless, the challenge of planning for the future is such that we must proceed regardless of the limitations of our current techniques. We must also recognize, as many futurists already have, that futures research and trend forecasting are more of an art than a science. As Solomon, Marstrand and Page (1975) point out in their lively book, The Art of Anticipation, "Forcasting is an uncertain exercise, plagued with fallacies, uncertainties and ignorance. It cannot aspire to be called a science and it must avoid the dangers of pseudo-science. It requires an imaginative synthesis between what is known and what is indefinite. This is properly described as an art or a craft."

To summarize, the art of future speculation can offer glimpses of symptoms of the future which can alter the prespective of decisionmakers -- to encourage them to invest in decisions which will deal with future conditions as well as present or past conditions. This preparedness for future events has become more relevant now than it was in the past, due to the current rate of change which increases the need to make decisions about diverse conditions and increases the costs of bad decisions and non-decisions for society. The park and recreation movement is a vital part of society and includes people who believe in improving the quality of life. To believe in this concept and to operationalize it requires that individuals bring flexibility into existing institutions.

APPLICABILITY OF FUTURES FORECAST IN HCRS RECREATION POLICY PLANNING

The creation of the Heritage Conservation and Recreation Service (HCRS) in 1978 reflected such a commitment on the part of the Carter Administration to improve the making of public policy for recreation, natural resource protection and historic preservation. Advocacy of the National Heritage Policy Act; protection of Barrier Islands; improved administration of both Federal and State sides of the Land and Water Conservation Fund; implementation of the Urban Park and Recreation Recovery program; and preparation of the Third Nationwide Outdoor Recreation Plan all indicate HCRS's attempts to anticipate future needs.

However, futures forecasting has different meanings and operates toward different goals depending on the level at which it is developed. Obviously, the forecasting needs of an individual park manager are very different from those of an administrator responsible for overseeing many varied facets of park and recreation planning. Strategic long-range planning and policymaking in HCRS's business requires some indication about what conditions will prevail several years hence.

The most important requirement of such long-range futures forecasts is that they capture the unexpected. Many things will certainly continue in rather predictable patterns. However, it is the unexpected development, often produced by the interaction of predictable existing patterns that is most elusive. The value of these more speculative types of long-range futures forecasting is that they attempt to predict the "unpredictable" types of events which have sweeping effects on established trends. The techniques used in these exercises are usually based on more imaginative, subjective processes as opposed to structured, quantitative ones.

It is difficult to know how to recognize a valid forecast amidst the many wild guesses. However, the main value of long-range forecasts is not in their accuracy. There are simply too many intervening events to be able to describe with any great degree of precision what, for example, the nature and use of national parks will be in twenty-five years. The value of long-range forecasts and studies of recreation trends lies in their ability to sensitize planners and policymakers to the ranges of possibilities that await them just beyond the horizon of what can be predicted or foreseen. Although accuracy in terms of timing and magnitude of events is desirable, the prime objective of long-range futures forecasting is to reveal the full spectrum of possibilities that might be realities in five ten, twenty or thirty years.

This is particularly relevant to those of us in the Federal government who are guardians of the public trust in administering public lands for park and recreation purposes. We have the responsibility to ensure that the public values presently preserved and enhanced on these lands survive to be used and enjoyed by future generations. Forecasting is also important because the development of a single park, from first conception, through land acquisition, to eventual recreation development may take up to twenty years to complete. Long-range forecasting will become even more relevant to park planners and managers in years ahead as fiscal compression increases, as our nation's natural environments are depleted and transformed, and as all basic land use decisions take on still greater importance.

Keeping in mind that each of us will spend the rest of our lives in the future, many of us actively shaping recreation policy, we would like to share with you some of the insights and accomplishments of our new Nationwide Recreation Planning Process, which culminated on December 11, 1979 with the President's transmission of the Third Nationwide Outdoor Recreation Plan to the Congress. Within the limits of existing information, this Plan's Assessment sought to discern many trends in contemporary recreation, and to anticipate future trends. The Plan's Action Program developed responsive policy options to ease the transition of recreation into the future in America.

Before proceeding with a discussion of the findings of the Plan's Assessment, it is important to say a word about the data sources used in this document, as well as about the general limitations on data in the park and recreation field. Inconsistent or nonexistent data bases place real limits on the degree of accuracy that is possible in trend analysis.

As you are perhaps all well aware, data collection and evaluation in the park and recreation field are not as strong as they should be. At the national level, data is incomplete, out of date, or simply unavailable. There is also wide variation between agencies and recreation professionals over what quantitative and qualitative measures are most appropriate as indicators in the recreation field. The long-standing debate over qualitative recreation output measures epitomizes this problem.[3] Therefore, the production of accurate, longitudinal data on recreation and its relation to important national concerns is a critical long-range need.

Variability in available data bases and their aggregation made the preparation of forecasts for the Assessment somewhat problematic. Nevertheless, in the relatively short time frame of two years, a compilation of the best available information was made. We were forced to rely heavily on non-park and recreation sources for key trend information. First and foremost, however, we used data from the latest Nationwide Outdoor Recreation Survey, completed in 1977. The data collected during the survey show the relationship between certain socio-demographic variables such as age, sex, education, income, etc. and rates of participation in selected outdoor recreation activities. One component of the survey involved a subsample of 14,000 interviews with visitors onsite at 155 Federal recreation areas. Many of you may be interested in the findings which compare public recreation use between the different recreation-providing Federal agencies.

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[3] In the area of quantitative measures, while agreement now exists among Federal recreation agencies to use "recreation visitor days" or "visitor hours" as the basic unit of recreation output measurement, there is still no standardization of data collection techniques. In the area of qualitative measures, there is considerable disagreement as to how to measure the quality and cost-effectiveness of recreation outputs. While some qualitative values can be measured in economic terms, noneconomic benefits pose difficult measurement problems. These and other related problems were discussed at a recent "Workshop on Recreation Output Measures" held December 11 - 14 at Harper's Ferry, W. Va. The workshop proceedings will be published sometime during 1980. [personal communication, Beverly L. Driver, USDA-Forest Service Experiment Station, Ft. Collins, Colo.]

In addition to survey data which was analyzed and interpreted, significant trend information was distilled from various reports prepared by the U.S. Census Bureau on such parameters as population projections, geographic mobility, family size, etc. Planning studies, research reports and data provided by the key recreation-providing Federal agencies were studied for evidence contributing to trend analysis. Reports and policy documents from other Federal agencies were also scrutinized. Significant recent findings of the Departments of Labor; Health, Education and Welfare; Transportation; Agriculture; Commerce; and others were included.

In the next few years HCRS will seek to improve still further the collection and analysis of meaningful data on national recreation trends. While improved data collection will clearly benefit many in the park and recreation field, at least part of the argument for more refined data is based on a somewhat selfish motive. If we assume that more decisions will be subjected to powerful public and political scrutiny, then we need refinements in the policy planning information base in order to help withstand criticism.

CURRENT TRENDS IN RECREATION

The number of participants in outdoor recreation has grown substantially, and their demographic make-up has changed to include people with significantly different social and economic backgrounds than those of recreationists in years past. The qualitative changes in the recreating population reflect more than just a higher standard of living and expanded leisure time; they can also be attributed to a redefinition of society's values, new economic forces, and advanced technology. Recreation managers and policy makers must be aware of these evolutionary cultural changes if they hope to grasp the nature of contemporary recreation trends and their implications for the future.

Numerous changes in the number, location, character, and recreation interests of America's recreationists are occurring and will be likely to continue for the next ten years. The 1977 Nationwide Outdoor Recreation Survey reveals that recreation continues to be an activity of great importance to most Americans. Eighty-six percent of Americans surveyed indicated that recreation remains one of their most important interests. Other surveys show that some 90 million adult Americans engage in recreation activities on a regular basis.

The latest available figures also show that recreation is of tremendous importance to the national economy. Recreation expenditures now account for nearly $200 billion. This amount dwarfs the five to seven billion dollars of Federal, State and local public expenditures spent annually on recreation. Nearly $1 out of every $8 spent by consumers went for recreation. In addition to its burgeoning economic impacts at both national and regional levels, recreation contributes significantly to maintaining the physical and mental health of Americans. This contribution is only beginning to be adequately appreciated.

The sharpest changes in recreation participation in the future are due to broader underlying demographic trends. Our nation's population is aging steadily and future recreation planning must adapt to meet new demands. The median age of Americans will rise steadily over the next twenty to thirty years as the post-World War II "baby boom" age cohorts move into maturity. The median age will top 30 years in 1980 and reach 35.5 by the year 2000. All of this will bring important changes in recreation. Birth rates are expected to remain low, so that the numbers of those in so-called "prime recreational years" from 12 to 25 will continue to decline through the year 2000. However, the increasing emphasis on physical fitness will likely extend the life cycle of popularity for many activities even past the traditional ages of declination.

Inevitably, recreation planners will face the needs of an older population which is healthier, interested in recreation, retiring earlier, living longer, and one with more available income than its predecessors. The Census Bureau reports that 65 year olds now exceed 23 million and projections indicate that this age group will increase by one-half million individuals per year over the next decade. While the recreation market for the elderly will sharply increase, many cities are still having difficulty providing adequate senior citizen recreation programs. More outreach and special transportation services are especially needed.

Recreation planning must also respond to changes in the population's location. The Census Bureau has documented the shift in population from older, industrialized areas of the Northeast and Midwest to Sunbelt States. These areas are expected to grow twice as fast as the Northeast and North Central States in the next twenty years. There is also a perceptible "back to the city movement" in many urban core areas, and more Americans than ever before, some 72 percent, make their homes in urbanized areas. This trend will continue to put pressure on park and recreation systems to expand their land and facilities in new, growing areas and to maintain existing land and facilities through innovative measures in declining areas.

Other important socioeconomic trends affecting recreation include the following. The average household size is declining, divorce rates and the number of unmarried couples continue to grow simultaneously, all impacting the family unit, traditionally the molder of an individual's recreation participation. Today, there is a greater need than ever before for recreation to play a stabilizing role, to provide a sense of community and family for those lacking this structure.

There are also substantial increases in the pursuit of high-risk recreation activities among young adults. Sports activities such as rock climbing, hang gliding, scuba diving and off-road vehicle use are examples of this trend. Sociologists' attribute these tendencies to technological innovation in recreation equipment and the psychological benefits accruing to participants, such as relief from stress and boredom.

Sex-related differences in recreation participation are rapidly diminishing. More women than men are now starting many recreation activities. This sex-based equality is particularly evident among the young where women are actively participating in many sports traditionally dominated by men. Women's participation in high school and college athletics is also showing steady growth spurred by Title IX. This trend will likely boost still further the sales of recreation equipment, particularly for those products directed to women's markets.

Other factors likely to affect recreation in the years ahead are income levels. Rising amounts of disposable income have fueled the current leisure industry boom and there is good evidence that expenditures for recreation and leisure activities are rising even faster than consumer spending as a whole. Although real income levels may taper off due to inflation and stagnant productivity, a countervailing trend is the growth of dual income households.

Americans also have more leisure time now than ever before, and are better educated than at any previous time in our nation's history. Much of this additional leisure time is being devoted to recreation and there is a clear correlation between higher educational levels and greater recreation participation. Americans now have larger blocks of holidays and vacations in part due to smaller families, a shorter work week, and time-saving technological innovations. There has also been a continuing decrease in the proportion of an individual's life spent at work, a trend supported by extended schooling periods, earlier retirements and shorter working hours. Results from the 1977 Nationwide Outdoor Recreation Survey show that participation in recreation activities will continue to diversify and grow. According to data on new starts, the ten activities showing the fastest growth are: cross-country skiing, downhill skiing, tennis, sailing, snowmobiling, water skiing, canoeing/kayaking, golf, off-road vehicle use, and horseback riding. Similarly, those with the highest potential for growth are: downhill skiing, tennis, water skiing, horseback riding, cross-country skiing, tennis, primitive area camping, sailing, golf, snowmobiling and canoeing/ kayaking.

Our colleagues in the USDA-Forest Service (1980) have come up with projections of recreation participation stretching out to the year 2030 which show that while recreation will grow substantially, snow-based recreation activities will grow the fastest, followed by water and then land-based activities. Factors such as the anticipated growth in population, income, and education all contribute to the projected increases in outdoor recreation participation. However, these increases will not be as great as the extremely large growth in participation experienced during the 1960's. Several factors which may further dampen these growth rates are: the population's changing age structure and rising energy costs.

Our analysis in the 1977 Survey of Federal estate visitation to national parks, forests, wildlife refuges, recreation areas, historical sites, Corps of Engineers lakes and reservoirs, and other Federal resource lands, clearly shows that users of Federal recreation areas are not a representative cross-section of the general population. Users of the Federal estate have higher levels of income and education, and are considerably older than their average counterparts in the general population. This disparity is most evident for visitors to National Park System sites (HCRS, 1980).

Also, since most Federal recreation areas are located more than 100 miles from the majority of the American population, a significant percentage of Americans cannot easily reach Federal recreation areas regardless of whether the areas are located in the West or the East. The 1977 Survey shows that these travel distances vary dramatically among the ten Federal regions. The Survey also shows that recreation on the Federal estate is largely a group activity, and that most groups contain children. In addition, the larger a group is, the more likely it is to stay at the site for an extended visit.

The reasons visitors choose particular Federal areas vary dramatically. Corps of Engineers' visitors cite the availability of good facilities; Forest Service users cite scenic beauty; and National Park System visitors are most likely to cite a desire to visit new areas. The most popular activities at Federal recreation areas are closely related to natural features of the landscape, with sightseeing and camping topping the list.

Users of the Federal estate share a similar concern with the general population over lack of time and crowded conditions as the key constraints or deterrents to participation. Of those expressing dissatisfaction with the Federal estate, half of all complaints centered on facilities. Many of the unmet expectations expressed by visitors, such as low water levels in reservoirs or inability to view wildlife, cannot be readily corrected by agency managers.

While many of the projections for recreation point to increasing although moderate growth, recent developments concerning energy costs cast doubt on these forecasts. Recent oil price increases, last summer's spot shortages, and the prospect of still higher prices, inflation, and intermittent shortages for the foreseeable future lessen the chances for sharp growth increases in outdoor reccreation. Although verified quantitative relationships have not yet been fully established, economic analysis of fuel costs and the amount of travel undertaken indicates that a negative or inverse relationship exists (Goeldner et al. 1975). Since most Federal and regional destination recreation areas are oriented to visitors traveling by private car, use levels will continue to respond to gas prices and supply effects. The best current evidence suggests that future increases in recreation participation will be determined, as many other items in the consumer budget will be, by the relative price and income elasticities of household energy and travel expenditures. Energy problems will also affect public park and recreation management.

While personal mobility increased tremendously in the past three decades, the 1980's loom as a period of adjustment to scarcity of available energy resources and pose the imperative to utilize energy more efficiently. Other key trends in recreation as a result of energy instabilities include the following. Fuel costs will rise and supplies will tighten still further. All facets of recreational travel will become more expensive. The public will take fewer and shorter recreation trips. More recreation will take place at alternative sites close-to-home. Lower and middle-income groups will be affected most severely by higher prices and reduced mobility. Demand for alternative transportation modes to recreation opportunities will increase, particularly for transportation to remote recreation areas.

Reductions in visitor use of more remote national parks, national forests and other congressionally designated recreation areas is particularly likely. Adverse effects will also occur at those parks or recreation areas that feature energy-intensive forms of recreation. The economic effect of such use reductions will strongly affect the travel and recreation industries. Conversely, substitution effects will increase visitor pressure and public demand at large urban or regional parks as well as at those recreation areas which are within 100-300 miles of major metropolitan areas.

The public is also likely to take more group-type vacations. There will be increased recreation planning attention for those who cannot afford cars; and increased development of, and consumer investment in, more efficient recreation vehicles and automobiles. Experts also expect a return to destination-type recreation facilities and a consequential concentration of travel patterns.

It is probable that the national search for new energy sources will degrade the quality of some recreation areas and increase pressure to allow energy resource exploration and development in wilderness areas, national parks and other protected lands. Park and recreation agency involvement with energy conservation and alternative energy resources to help meet operating needs will also increase.

While all of the Assessment's trend data cannot be summarized in this limited paper, other important trends affecting recreation as analyzed in the Assessment are also briefly developed. In the area of government park and recreation services, fiscal constraints will cause reductions in staff and curtailment of programs. The price of prime recreation land will continue to rise and funds available to purchase lands will fall short of demand, particularly in urban areas. There will be increased development of more innovative less-than-fee land protection and acquisition techniques as well as greater imposition of recreation fees. Provision of economic incentives to motivate land owners to open lands for public recreation will grow and innovative urban recreation spaces will be utilized increasingly; for example, waterfront redevelopment, industrial area reclamation, and redesign of deteriorating parks. There will be growing recognition of interdependence between private and public sectors, producing a rethinking of traditional business relationships, including changes in concessions policies, and increased reliance on government use of contractual services. Construction of new facilities which lack long-term operations and maintenance commitments will probably decline, while better techniques of fiscal management in recreation administration rapidly develop.

For natural resource management, the future looms as a time of better understanding of ecological factors affecting resource-based recreation areas. There will be greater reliance on park, forest and land inventories to grasp resource management challenges. Resource managers will be better trained in integrated management to help cope with multiple use conflicts and carrying capacity limits. However, there will be increased control over public recreation usage in natural and developed recreation resource areas through time and space rationing. Greater conflicts between recreation and non-recreation uses of lands, and heightened conflicts between different types of recreation users are also likely. Some decline in the quality of recreation experiences due to congestion and over-crowding will probably occur although public recreation activities such as nonconsumptive uses of wildlife will continue to grow.

Several changes in public participation in park and recreation agencies are also likely. Institutionalization of improved public participation processes will occur at the local level. There will be greater involvement by private non-profit groups in the provision of public recreation services through contractual arrangements. Involvement of volunteers, the handicapped, the elderly, and minorities in the design of recreation services and the management of services will grow. There will also be greater information dissemination to the public and the institution of new public input mechanisms in the Statewide Comprehensive Outdoor Recreation Planning process.

The growing diversity in public recreation demands caused by market diversification, specialization, and segmentation will affect the private sector in years to come. The private sector is likely to play a still greater role in meeting new recreation demands. The private sector will increase technological innovation in recreation equipment to conserve energy and raw materials while simultaneouly enhancing the public's recreation experiences. Foreign tourism will grow even more due to favorable exchange rates and the range of America's scenic, recreational and historical attractions. There will also be an increase in industrial recreation or opportunities at the work-place due to recreation's positive effects on productivity.

CONCLUSION

While all the trends and issues described in the Third Nationwide Outdoor Recreation Plan's Assessment are not repeated here, it is clear that more precise information about the future is still needed. Accurate long-range forcasting will require availability of adequate time and resources to do the job conscientiously, and managerial commitment to the use of forecasting as a means of keeping sensitized to the need for changes. While we are beginning to get a better grasp on many of the structural trends unfolding in recreation, more information is still needed. There is a great need for better "user-needs" assessments to reveal latent public demands. Better data on regional recreation differences is also needed so as to anticipate the spatial distribution of new recreation demand.

Despite many pessimistic projections, these are dynamic times for recreation and creativity is essential to galvanize future actions to strengthen and support recreation. Recreation has increased stature in public policy discussions due to the growing use of recreation and park development to meet economic objectives, community revitalization and health promotion needs, among others. Even though Epicurus was right when he said, "No means of predicting the future really exists," futures forecasts are one important tool to help illuminate future trends and possibilities for policymakers. The projections of recreation's importance in the 1980's, developed for the Third Nationwide Outdoor Recreation Plan, leave one with reason for optimism despite the difficult challenges they pose for public recreation agencies.

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TREND INDICATORS NEEDED FOR EFFECTIVE RECREATION PLANNING--A STATISTICAL BLUEPRINT FOR THE 80's [1]

H. Fred Kaiser and George H. Moeller [2]

Abstract.--Here we outline important elements in recreation planning and describe how the process is changing, using Federal land management agencies as our example. We outline some factors that will impact on planning in the 80's, encourage establishment of a system to monitor trends in key factors that influence recreation behavior.

THE CHANGING PLANNING PROCESS

More than ever before, future outdoor recreation planning decisions will require reliable, up-to-date trend information not only about what the American people are doing, or not doing, for recreation, but what they plan to do and the factors that will influence what they plan to do. In the past, application of outdoor recreation planning concepts to on-the-ground management has been largely informal and intuitive, particularly in cases where conflicts over resource allocation have not been intensive. For many years, the success of judgmental or subjective planning methods were measured by continuing political support and relative lack of controversy over land use policies.

But the situation has changed as pressures mounted in recent years. Protests and court suits have increased as resources have become more scarce. The environmental movement of the 1960's and early 1970's led to Federal legislation, regulations, and executive orders that required increased attention to the environmental consequences of Federal actions, including those resulting from management of natural resources. Legislation, such as the National Environmental Policy Act of 1969 with its requirements for environmental assessments and impact statements, generated new needs for information on participation in outdoor recreation.

A more recent demand has come from Federal legislation requiring renewable natural resource appraisals to guide national policies and programs, as well as accelerated planning for management of Federal lands. In 1974, the Congress enacted the Forest and Rangeland Renewable Resources Planning Act (RPA). This legislation authorized the Forest Service to conduct periodic assessments of the renewable resources on all of the Nation's forest and rangelands and to identify management needs, opportunities and alternative programs. The National Forest Management Act of 1976 requires that land and resource management planning be completed on all National Forests by 1985, thus generating an additional major need for outdoor recreation information. The Federal Land Policy and Management Act of 1976 requires the Bureau of Land Management to develop multiple use management plans for lands under its administration and to inventory the resource values of the public lands in order to identify changes and emerging resource needs. Under the provisions of the Soil and Water Resources Conservation Act of 1977, the Soil Conservation Service is conducting periodic appraisals of the soil, water, and related resources of the Nation. The purpose of this appraisal is to assure that the Department of Agriculture's programs for management of soil, water, and related natural resources address long term needs.

The effects of these legislative developments has been to stimulate a major need for outdoor recreation information. For instance, in the National Forest System, local and regional land and resource plans are being prepared to establish long range outdoor recreation priorities. To satisfy RPA requirements, Regions must compile outdoor recreation information for the National Assessment and Program, appropriate RPA program targets for outdoor recreation to individual National Forests, and coordinate these planning activities with State and other agencies.

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[1] Paper presented at the National Outdoor Recreation Trends Symposium, Durham, NH, April 20-23, 1980.

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The relationship between the RPA Recommended Program and land management planning and the annual budgeting process is now guided by Section 6 of the National Forest Management Act of 1976. That section requires formulation of a detailed planning system for program coordination. In essence, what was required was refinement of a process that has been evolving within the Forest Service for many years. Some key characteristics of this system are:

- o Allocation of resource production targets based on resource capability of each administrative unit and on relative efficiency of production.

- o Regional Foresters utilizing assessment findings and the National RPA Program to prepare regional plans. These plans will show how outdoor recreation targets are distributed among National Forests within each Region.

- o Using the assigned target range and local information on capabilities, each National Forest prepares a plan for accomplishing assigned targets. Specific aspects of this formulation are:

  (1) Development of a 4-decade program for outdoor recreation outputs for each National Forest based on the RPA Recommended Program.

  (2) Development of a 10-year outdoor recreation activity program for each National Forest based on the RPA Recommended Program, including appropriate National Forest-wide administrative support, transportation, resource protection and public safety activities.

  (3) Identification of land units at the National Forest level, from which outdoor recreation outputs or combinations of outputs could be produced, and of the appropriate activities and investments necessary for production of these outputs. This identification will come from the inventory information base for each National Forest; and

  (4) Conduct environmental and benefit-cost analyses of the relative efficiency of production from each resource unit or group of resource units with similar characteristics.

  (5) Identify major outdoor recreation issues and demonstrate program responsiveness to these issues.

As other agencies have found out, assessing the demands for outdoor recreation in order to plan for future programs is a complex undertaking. Outdoor recreation covers a wide range of activities and the use of diverse combinations of natural resources, management, and facilties. In addition, recreationists' tastes are known to change with technology, availability of leisure time and economic conditions, among other factors.

In the past, the Heritage Conservation and Recreation Service and its predecessor, the Bureau of Outdoor Recreation, have evaluated the demands for outdoor recreation by conducting national surveys of outdoor recreation participation. States have also conducted surveys patterned largely after these national surveys. Two basic types of information were collected: data on participation in various recreational activities; and socioeconomic data about the people participating in these activities.

For a variety of reasons, however, such surveys have involved no systematic approach to the collection of data over time. Therefore, trend analysis has been difficult or impossible. Similarly, at a more local level, recreation use data has been often limited to yearly estimates or counts of participation for individual sites. As a consequence, it has been difficult to determine whether trends developed from this data reflect real demand responses, or supply responses, or a combination of both. Therefore, analysis and planning for outdoor recreation has often not competed effectively with other values such as urban and industrial development, timber harvest programs, and water resource and energy development. National policies and program decisions on these competing outputs will be strengthened by availability of increasingly comprehensive information bases and analytic systems to evaluate future demands. If comprehensive, comparable information is not developed for outdoor recreation, outdoor recreation probably will not receive adequate consideration in the planning process relative to other resource programs. Provision of this information base presents a major challenge to all of us concerned with outdoor recreation.

TRENDS FOR THE 80'S

Factors that influence recreation participation are complex and interrelated, and the complexity is growing. Past experience is no longer useful as a single input to planning. Even the old standby indicators--population growth, leisure time, income, and mobility--are no longer as useful for planning as they once were. These were useful indices when demands for all leisure services were soaring and people were participating in as much recreation as they could. Under these conditions, more was always better, and the planner with the most grandiose plan was usually closest to fulfilling demand.

But tomorrow will be much different. New factors will influence the shape of future demand, and the influence of old standby indicators will change. Energy availability, urbanization, technology and other factors will be of as much or more importance in determining demands in the 80's as the old standby predictors were during the 60's and 70's. These shifts will necessitate a whole new approach to planning, a need to develop new understanding of the factors that influence demand, and a new system for monitoring trends in key indicators that influence demand. Some of the factors that we feel will be important in shaping recreation demand in the 80's are discussed below. They are organized into five categories: Demand Generating Factors; Changing Patterns of Participation; Characteristics and Availability of Supply; Technological Change; and Energy.

DEMAND GENERATING FACTORS

Population characteristics

An obvious determinant of recreation demand is population size. The more people, the greater the demand. In the U.S., the current population is about 221 million and it is expected to grow to an estimated 232-234 million by the year 1985, and to 250-300 million by 2000. But, the population growth rate has decreased sharply in recent years. In the absence of major changes in birth or death rates, this decline in the rate of growth seems likely to continue. Thus, while the total size of the population will continue as an indicator of future demand for recreation, it may not be as important an indicator as it has been in the past.

Rather, population structure will play a bigger role in determining the kinds of recreation activities and experiences demanded. As population structure changes, shifts occur in recreation demand patterns. The age structure of the population provides an example. Past fluctuations in birth rates--decreasing during the depressed 30's, increasing dramatically during the 40's and 50's, and the current sharp decline--have produced age bulges in the population distribution. Because these bulges reoccur periodically through time, social, economic, and other institutional services, including recreation services, will have to be adjusted up and down through dynamic planning. In the longer term, the mean age of the U.S. population will continue to increase due to better health services and reduced birth rates, and demand for physically active forms of outdoor recreation are likely to decrease.

Relationships between work and leisure

A second major demand-related factor that will significantly influence recreation consumption in the 80's is the patterning of work and leisure throughout society. In most industrialized societies, time devoted to work activity has decreased steadily over the past 100 years.

Factors unrelated to work have also added to the growth in available leisure time. Technological innovation has allowed for the more efficient use of time. In the home, techology has reduced time required for subsistence tasks. More efficient transportation systems have significantly reduced travel time, and, as a result, provided more at home leisure time.

Whether or not the trend in available leisure continues upward is the subject of considerable debate. Few comparable studies have been done to determine trends in leisure time. It may very well be that we are approaching a limit to the upward trend in leisure time. In fact, leisure time may actually start to decline because of offsetting trends in increased time needed to commute and additional time shifted to nonrecreational pursuits such as home maintenance and community services. Individual and social attitudes toward use of leisure is also likely to be more important.

Changing social/cultural roles

Another important group of variables that will influence future recreation planning relate to the changing role of individuals in society. While work-leisure patterns influence the frequency of participation, "experiential" factors, such as expectations, satisfactions, and participant attitudes, influence the type of recreation experience demanded.

First among these factors is the changing nature of children's experiences. Childhood experience has been found to influence adult recreation behavior. This is particularly true for major forest-oriented recreation activities like fishing, camping, and hunting. As the trend toward urbanization continues, children growing up in cities may have limited opportunity to engage in leisure activities that depend on natural surroundings. At the same time, they will have more opportunity to learn about alternative forms of leisure activities--activities that do not require natural environments.

A second experiential factor deals with what might be termed perception of aging. While the process of aging involves a decline in outdoor recreation participation, the future rate of this decline may depend on society's perception of the elderly, and, even more, on the way elderly people view themselves. Until the mid-sixties, it was felt that people began to disengage themselves from the mainstream of society after they reached retirement age. But, as the mean age of the population has increased, a new concept has emerged. Older people now maintain a higher level of activity than they did a few years ago. The new emphasis on activity is keeping elderly people more active, while improvements in health care systems help to keep them in better physical condition. The implications for future planning are obvious.

Another facet of the changing role of the individuals during the 80's is the nature of the individual's role as a member of a family. People are marrying later, having fewer children, and many married couples are not having children. Furthermore, married individuals are increasingly pursuing careers independent of their marriage. These trends in marital relationships are drastically altering the role of women in today's society. The changing role of women may have a greater impact on recreation consumption than all other factors combined. Women are now making incursions into heretofore predominantly male recreation activities. -- This trend merits close observation if we are to plan realistically to meet future recreation demand.

Living environments

Throughout the 70's, late on any Friday afternoon, a steady stream of cars could be seen leaving major U.S. cities. The cars returned on Sunday evening after their occupants had experienced a weekend of recreation in the rural countryside. This mass-weekend exodus, although facilitated by cheap fuel, could be attributed in part to a need for temporary escape from the rigors of urban living. The degree to which stress-producing aspects of urban living can be reduced will strongly influence the need to escape cities in the future, and, correspondingly, affect demand for rural recreation. If sheer population density is the cause of urban stress, then there may be no real solution and the weekend migration will continue. But recent studies indicate that crowding alone is not sufficient to produce such stress. If high-density living is not a source of urban stress, then it may be possible to solve some pressing urban problems. If cities of tomorrow can be provided with sufficient amenity values, recreation behavior of urban residents will be altered significantly. Attractive urban environments will reduce demands on rural recreation resources. Conversely, if such urban environments are not modified, demands on rural recreation resources will increase substantially. But, under conditions of energy scarcity, there may be no alternative to revitalizing cities.

Another urban-related factor that will have strong influence on future demand will be the movement away from single-family residences. The trend toward apartment living, condominiums, and multi-unit dwellings is likely to continue as prices continue to increase and developable urban space decreases. As energy scarcity grows, urban areas are likely to reach a geographic limit based on availability of public transportation. There will be little alternative but to move toward more concentrated populations. This movement will mean that backyard space, once available to single-home unit dwellers, will no longer be available nor will easy access to the countryside. The result will be an intensification of demand for recreation facilities in and very near urban centers.

Economic environments

Much of the past growth in outdoor recreation consumption has been fostered by easy access to inexpensive forms of recreation. Not only has participation been relatively inexpensive, incomes have been growing, thereby providing the ability to participate in recreation and purchase consumer items. The relative price of recreation in comparison to prices of other goods and services has been relatively low. Few can argue that at the outset of the 80's, gains in income are often offset by inflation and by the soaring costs for basic necessities--food, housing, clothing, and energy.

As we plan for leisure services during the 80's, we must monitor relationships between markets that most impact on recreation and on relative price relationships. The 80's may demonstrate how really important recreation participation is to the American public--as shown by how willing people are to pay for a higher proportion of costs in relation to other demands on their increasingly scarce financial resources. The same relationships will hold for public expenditures for providing recreation in relation to growing costs for other public services.

CHANGING PATTERNS OF PARTICIPATION

The cumulative effect of rapid change in the factors previously discussed is that recreation behavior patterns will be subject to both short- and long-run change. These changes underscore the need to document, on a continuing basis, the outdoor recreation participation rates and patterns of the population as a whole and for various segments within the population. Only in this way can we begin to identify meaningful trends and shifts in participation and to develop plans that are responsive to changing demand.

Many leisure activities are substitutable, and the individual can freely interchange among them. Similarly, some activities are complementary--as demand for one goes up the demand for others goes down. While there is little known about these relationships, we should recognize that as major factors that underlie recreation behavior change, people will adjust their patterns of leisure behavior through substitution and complementary decisions about the activities they select.

Futhermore, we need to understand motivational determinants of leisure behavior, i.e., forces that underlie recreation behavior patterns and choice. These motivational forces provide a basis for understanding current recreation behavior and may serve as a guide to predict how people are likely to substitute among alternative recreation activities.

CHARACTERISTICS AND AVAILABILITY OF SUPPLY

Supply factors also influence participation patterns. One supply-related factor is the changing pattern of land ownership. Today, most forest land and open space in or near large metropolitan areas is in small tracts held by private owners. These owners have exhibited a growing tendency to restrict public access to their land. The degree to which these privately owned lands can be used for public recreation will depend largely on the public's willingness to reimburse owners for such use. Land zoning, recreational easements, transfer payments, and other land use control devices can be employed to increase the amount of recreation land readily accessible to urban populations. Or, public agencies can purchase these lands. Measures are needed to index the change in distribution and relative accessibility of such resources so that appropriate supply responses can be developed through planning.

Other indices are also needed to evaluate how supply can be altered to meet recreation demands. For example, indices are needed to evaluate how existing facilities can be expanded to their full site capacities, or adapted to the needs of special populations. This information will make it easier to make policy decisions to influence recreation consumption by changing any combination of the following: The quality of recreation experience provided; methods of management; site capacity; and accessibility and availability of recreation facilities. Scarce and unique resources present a special problem. Here, use must be closely monitored in relation to site capability so that plans can be made to control and regulate use within resource capabilities.

Finally, it will not be sufficient to know where supply exists and to understand its changing capability without understanding how accessible it is to various population segments. What is accessible to an urban slum resident is not the same as what is accessible to an upper middle class person living in an adjoining neighborhood. Supply-related trend indicators, therefore, need to be evaluated in terms of their relationship to various population segments before such indices can be made useful for planning decisions.

TECHNOLOGICAL CHANGE

By introducing new types of recreation equipment, technology provides a continual change in the composition of available leisure activities. For example, the recent development of electronic games has provided new forms of home-oriented indoor leisure pursuits. Development of snowmobiles and other recreational vehicles has created demands on outdoor recreation resources that were not even dreamed of when plans for recreation facilities that serve these activities were developed. Estimates of the impact of technology on recreation demand can only be very roughly estimated, but it is certain that technology, both directly related to providing new kinds of leisure pursuits and to factors that influence recreation demand, will shape the future of recreation behavior. The impact of technology on planning is obvious. Systems need to be set up to monitor technology and to evaluate the kinds of impacts that are likely to occur.

ENERGY

We conclude this review of major factors that need to be monitored with a discussion of the factor that has had as much impact on starting the surge in demand for recreation as anything else--Energy. Few would argue that availability of inexpensive energy, coupled with correlated improvements in transportation methods and systems, contributed greatly to past growth in recreation consumption. Once it was believed that this abundance would continue; but as gasoline lines grow and prices skyrocket, the future seems much less predictable.

If energy costs remain low or if technology creates ways for more efficient uses of available energy, current rates of recreation consumption can be sustained. But, if these things do not occur, major shifts in recreation demand patterns are likely to occur. For example, during the recent gasoline shortage. U.S. recreation travel patterns changed significantly. As gasoline becomes more scarce and costly, people will have to make choices about how they will either allocate scarce gasoline (if rationing occurs) or how they will allocate income (if gasoline prices continue to rise) among competing needs. How recreation fares in these decisions will have a big impact on recreation demand. These decisions must be of central concern to recreation planners.

SUMMARY AND CONCLUSIONS

In this paper, we have briefly reviewed the planning process in relation to the kinds of trend data that will be needed to plan for future recreation needs. We have identified some of the kinds of trend indices that we feel will be important in the future and tried to indicate why we feel they will be important. We have not, however, addressed how data on these indices should be collected; nor have we commented on the research needed to determine relationships between trend indications and future demands; nor have we discussed the development of modeling techniques needed to make demand projections and assessments. Hopefully these will be major topics for consideration during this conference.

The best of all possible situations would be to design a monitoring system to track all trend indices needed for planning. Of course, this is not feasible because it would be inefficient and impractical. There remains a great deal of work to do to: Determine which indices are most important; determine the way in which the various factors influence recreation behavior; relate indices to the planning process; design systems to monitor indices; and develop models to evaluate alternative plans.

We have tried to show that as the 70's differed from the 60's, the 80's will bring new changes that will influence recreation consumption and, consequently, recreation planning. Among these factors are inflation, energy, transportation systems, international relations, urbanization, etc. All of these factors will have impacts on shifting and changing the shape of demand for recreation. The old indices will not work. For example, we can be sure that population will increase, but, unless people have access to inexpensive gasoline, disposable income, and recreation facilities, they will not be able to participate in recreation. Shifts in factors that influence recreation behavior will necessitate a whole new approach to planning based on a revised understanding of the factors that influence demand and a new system for monitoring trends in key indicators.

The Growth of Selected Leisure Industries[1]

Elizabeth R. Owen[2]

Rapidly rising sales of sporting equipment, as well as the phenomenal growth of receipts from a variety of recreation-oriented service industries, have contributed in establishing the recreation market as one of the most dynamic and fastest expanding sectors of the United States economy.

Please see the full Commerce report for a greater, in-depth treatment of the subject material. Tennis, boating, camping and skiing are treated in four individual chapters. Detailed tables on expenditures, rates of participation, etc., are also included.

OVERVIEW OF LEISURE INDUSTRIES

Expenditures on leisure activities, especially outdoor recreation, represent a major and growing segment of the American economy, having reached $81.2 billion in 1977, $20 billion more than in 1974. This spending represents 7 percent of total personal consumption expenditures and covers outlays for a multitude of leisure pursuits ranging from admission to movies and sporting events, to magazine and newspaper subscriptions, and to purchases of toys and sports equipment.

The $81.2 billion does not include such expenditures as transportation and lodging connected with pleasure travel, vacation homes, and public recreation. When these and other related activities are added, the combined total is much higher and although precise amounts are not available, one recent estimate put the grand total of leisure spending in 1977 at $160 billion.

A rough estimate of the major components of leisure activity breaks down the $160 billion total spent on leisure into:

$27 billion for sporting goods purchases and associated service expenses.

$58 billion for television sets, radios, records, musical instruments, reading material, admissions to sports events, movies, cultural events, clubs and fraternal organizations, gardening materials, and other personal consumption expenses such as pets, photography, etc.

$71 billion for vacation travel, both domestic and foreign.

$4 billion for vacation cottages second homes, vacation lots.

The volume of retail sales generated by the demand for sports equipment is shown in table 2 which presents the 10 most popular categories in 1976, the last year ranking was available.

Sport equipment categories that are expected to have the greatest growth potential in the years ahead are soccer, racquetball, skiing, fishing, camping, softball, tennis, exercise equipment, sports apparel, and jogging shoes. Women's team sports equipment and apparel should also generate sales in the near future.

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[1] Paper extracted from The Growth of Selected Leisure Industries, U.S. Department of Commerce, May 1979. Available from U.S. Government Printing Office, Wash., D.C. Stock No. 003-009-00319-9. 41 pages.

[2] Recreation Analyst, Heritage Conservation and Recreation Service, U.S. Department of the Interior, Wash., D.C.

Table 2.-Retail Sales of Sporting Goods
(millions of dollars)

Category	Sales in 1976	Percentage Change 1975-1976
Recreation vehicles - - - - -	$2,700	16
Pleasure boats, motors and accessories - - - - - -	2,370	15
Firearms and hunting supplies - - - - - - - - -	1,120	5
Bicycles and supplies - - - -	957	12
Athletic equipment - team sales - - - - - - - - - - -	719	7
Tennis equipment - - - - - -	666	20
Golf equipment - - - - - - -	587	6
Fishing equipment - - - - - -	506	8
Snow skiing - - - - - - - - -	421	11
Camping - - - - - - - - - - -	386	7

Source: National Sporting Goods Association.

Product sales tell only part of the leisure story. Another part, probably the most dynamic one, is the services aspect of the recreation industry. For example, for skiers there are lift tickets to buy, for tennis players there are court fees, and for scuba divers there is the cost of refilling their tanks with oxygen. Other service activities would include equipment repair shops, facilities construction, management consulting firms, and professional sports instruction. These services are expanding more than the manufacturing sector, and will eventually form the heart of the leisure industry.

Further evidence of the magnitude and growth of leisure activities is attendance at major professional sporting events, which increased more than 45 percent between 1966 and 1976, as spending at these events almost tripled, from $668 million in 1966 to $1.5 billion in 1976.

More Time and Money for Leisure

The two major factors that have encouraged the explosive development of recreational markets have been time and money. In the past two decades, Americans have seen almost steady improvement in the amount of their time and money available for leisure pursuits.

While the 40-hour work week has remained constant since the end of World War II, the average worker now gets longer vacations and more holidays. This means that the average "leisure year" is 122 days--one-third of the total year. The expanded leisure year offers significant opportunities for outdoor recreation--fifty 2-day week-ends, a vacation period averaging 16 days, and at least five 3-day weekends associated with Monday national holidays. Leisure time is not expected to change to any great extent in the 1980's. While any decrease in total working hours is likely to be minimal, it is probable that further gains will be made in obtaining longer blocks of leisure time by reshuffling working time through such innovations as the 4-day work week and flexitime.

On the money side, real per capita disposable income (personal income adjusted for inflation and taxes) has been climbing steadily over the years, a fact that has contributed to the rise in discretionary income (money available for spending on items other than basic necessities). As a result, the long-term trend in recreation spending as a percentage of personal consumption expenditures grew from 5.5 percent in 1960 to 6.8 in 1975. This upward trend has leveled off slightly in recent years, mainly because of inflation which takes a larger share of personal income to cover the higher costs of housing, food, utilities, and medical care.

Spectator and Participatory Sports

Both spectator and participatory sports are contributing to the outdoor recreation boom. Professional sports leagues now operate nationwide in baseball, football, ice hockey, basketball, soccer, volleyball, softball and tennis. Since 1965, the number of major-league teams in all professional sports has jumped from 57 to close to 200. Additionally, touring golf, bowling, and tennis professionals criss--cross the country the year round for weekly tournaments.

Professional sports are thought to be still in the growth stage--with good opportunities for further expansion, particularly internationally. More and more U.S. teams will be playing in other countries in the near future, and the possibility of pay television is expected to have positive impact on pro sports. The major TV networks are increasing their sports coverage markedly, a fact that contributed tremendously to stimulation of interest. Spectator attendance at the 18 most popular major sporting events increased from 217 million in 1966 to 314 million in 1976.

The enormous growth in participatory sports has been even greater than that for spectator sports. There has been a greater popularization of sports activity among all classes and ages. Tennis, sailing, and squash were once the sports of the rich. Bicycling and rope jumping were formerly limited mostly to children. Camping, jogging and weight training were once considered only the idiosyncrasies of nature and physical fitness aficionados. All these sterotypes have disappeared now.

The recent surge in sports participation is the result of years of publicity about the benefits of exercise and better nutrition. Starting in 1975, American deaths from cardiovascular disease fell for the first time in a decade. New figures show that the mortality rate from heart ailments, long known as the epidemic disease of this century, has declined by more than 30 percent since 1950.

So popular has exercising become, that there are now an estimated 3,000 health clubs and spas around the country with several million members. The benefits of exercise also are being increasingly recognized by private industry which loses each year an estimated 52 million workdays to heart disease and $1 billion to common backaches. Many businesses are providing facilities and organized physical fitness programs for their employees, varying from a single softball field to million dollar exercise facilities run by professional staffs.

This increased interest in physical fitness and its physiological payoffs do not appear to be spread equally among the population. Results of studies indicate that most of the exercising is being done by the young, the better educated, and the affluent, by men more than women, and mostly by those in the Northeast and Far West.

Manufacturing, Distribution, and Employment

Scarcity of market data and occasional over-estimation of demand are partly rooted in the structure of the industries providing sporting goods and equipment. At the manufacturing level, only a few firms qualify as "powerhouses," with thousands more small firms in existence. Additionally, there are many small manufacturers who drop-ship directly to dealers, avoiding the traditional wholesale distribution system. This direct factory-to-dealer relationship is more extensive in the sporting goods industry than in most other consumer goods lines. Only the firearms and fishing tackle industries have substantially organized wholesale distribution.

Because of a lack of truly national sporting goods chains, the retail sporting goods industry is as fragmented as the manufacturing side. If more national chains existed, more standardization of products would probably occur, although favorable customer reaction to fewer, more standardized products in sports is somewhat doubtful since players seem to demand higher quality and more customized equipment as they become more skilled in their sports.

Following the trend of many other retail operations, the size of sporting goods stores in the future will tend to be either small and very specialized, or very large and general. Large stores, many of which are discount operations, are expected to increase their share of the total market from 15 to 25 percent by the mid-1980's, and will become involved in the service end of sports, such as repairing the equipment they sell, renting equipment, offering lessons, or sponsoring clinics or trips.

A more specialized, but growing aspect of sporting goods retailing is mail order sales of sporting goods and recreation equipment. Reflecting a growing belief that mail order purchasing is a more convenient and more budget-conscious way to buy, sales for 1975 are estimated to be about $113 million. Some acquisitive interest on the part of a number of conglomerates has also been reported in recent years.

Full-time and part-time employment opportunities in recreation are plentiful and are expanding rapidly. For instance, there is a growing demand for professional sports instruction, with tennis as the best example of this trend. Additionally, professional opportunities exist in sales and management of retail operations, management and maintenance of sports facilities, equipment repair, and consulting services for the development and management of sport facilities and sports programs.

Private sector employment opportunities are expanding and appear to offer the greatest potential. The U.S. Department of Labor in its Occupational Outlook Handbook predicts good employment opportunities in recreation in the 1980's. Estimates are that the private sector provides approximately 5 million jobs in recreation or leisure industries.

Public sector employment is smaller but still significant. An estimated 80,000 to 85,000 people are employed in Federal, state and municipal public recreation programs. These jobs are with parks, campgrounds, swimming pools and beaches, ski areas, arts and crafts programs, tennis facilities, and urban playground and recreation program centers. All of these activities require managers, planners, instructors, and maintenance professionals.

Various development assistance agencies, such as the Small Business Administration, the Economic Development Administration of the U.S. Department of Commerce, and the U.S. Department of Labor under the Comprehensive Employment and Training Act, are including construction of recreation facilities among their grants to stimulate employment. Some examples of where this funding is going are: a multi-million dollar grant for the refurbishing and building of sports facilities for 1980 Winter Olympics which will be held at Lake Placid, New York; construction of a freshwater lake/reservoir in Illinois also including designs for multiple recreation use; and grants to various localities for the construction of tennis courts, inner city recreation centers, and bicycle trails over abandoned railroad track beds.

Recreation and Travel

Few industries have as many areas of mutual interest and benefit as the recreation and travel industries. In effect, many recreation activities could not occur without the services of the travel industry. Conversely, a good portion of the travel industry is totally recreation-oriented, such as resort hotels, destination resorts, and ocean cruises. Resorts and carriers provide the means and destination activities that induce people to travel and attract them to a particular place, while the manufacturers of leisure-time products provide the tools of play.

A further benefit that results from this symbiotic relationship is the removal of the "fad" aspect from sports. Patronage of a resort for a particular sport in effect institutionalizes that sport. Permanent facilities--ski slopes, golf courses, tennis courts, marinas, bike paths, and pro shops--induce return business. Organized participation practically guarantees not only repeat equipment buyers, but also repeat resort customers.

The love affair with the "active life" has brought a radical attitudinal change to many Americans' approach to leisure. Leisure time has become just as important to them as their work lives. As with their careers, they are frequently setting goals for their leisure time, such as becoming a ranked tennis player, getting rid of a slice in their golf game, or training for the Boston Marathon running classic. In addition, more people are taking vacations with an athletic purpose. For example, in 1975 some 12 million people played golf, tennis, or skied while on vacation or in the course of taking trips. Of these 12 million, half took a trip for the primary purpose of engaging in one of these sports. Added to this group are uncounted millions who took a trip for the purpose of fishing, boating and other water sports. Assumptions are that vacations or trips whose primary purpose is to take part in a sport will increase in the future.

Tremendous opportunity for growth for the hotel/motel industry exists in the pleasure travel market. Many operators are beginning to add to their properties such features as athletic and health club facilities, tennis and handball courts, saunas, and tie-in arrangements with nearby golf courses or ski areas.

Package plans that cover lodging costs and sports admission fees or equipment rentals for one price are becoming extremely popular. Properties that are located in winter ski areas or include golf course, tennis court or horseback riding facilities have been the most extensive users of such package plans.

Other factors have encouraged businesses to concentrate marketing efforts on the pleasure travel market. The introduction of new, more economical types of air charters in the mid-1970's, the elimination by the Civil Aeronautics Board of many restrictive regulations on air charters, and the CAB's easing of discount air fares have also stimulated consumer interest in travel. The seemingly unending boom in U.S. travel by Americans and foreigners will undoubtly further stimulate new and existing recreation markets, while the travel and leisure industries will cooperate more with area retailers in joint promotion, such as packaged sports tours, resort programs of sports' instruction, and hotel sponsored weekend skill workshops.

Women's Involvement

Sales of almost all types of recreational goods and services to women are an area of both current growth and future potential. Women of all ages and all socio-economic levels are taking up a variety of sports, many for the first time. For example, more women are playing tennis now; one survey by the National Tennis Foundation reported an estimated increase of 50 percent from 1973 to 1974. A survey conducted by the National Federation of State High School Associations showed considerable increases in the number of girls participating in inter-school golf, skiing and tennis competition, which is a sharp reversal from the situation existing just a few years ago. Then not only inter-school female team competition, but any female athletic program, was the exception rather than the rule.

One major factor adding to growth in women's sports participation at high school and college levels has been Title IX of the Education Amendments of 1972. Under Title IX, schools receiving any form of Federal financial assistance must make athletic equipment, facilities, and opportunities equally available to both sexes. Since the athletic budget for women at the collegiate level was only 2 percent of the men's budget in 1975, a tremendous potential market for sporting equipment, footwear, apparel, and services specifically designed for women exists. In addition to the growth of the women's school athletic market, possibilities for a large increase in the number of women's athletic teams in industrial or high school teams.

While in their infancy women's professional sports are enjoying a healthy and rapid growth. Women professionals in golf and tennis are competing for purses in the hundreds of thousands of dollars, up from just a few thousand dollars in the most recent years past. Other sports that are fielding women professionals and pro teams are skiing, softball, volleyball and basketball. Many industry observers feel that women's professional basketball will develop into a major spectator sport in the next few years.

By far the greater increase in women's sport participation has been on the individual level. Apart from tennis that has enjoyed the greatest growth in popularity among women, a 1976 Nielsen survey indicated that 21 million American women participate in fishing, up from 9 million in 1970, slightly over one and one-half million women go in for hunting, up from 869,000 in 1970, and 20 percent of the Nation's scuba divers are women, up from 5 percent in 1970. There are now several fishing, hunting, and outdoor groups specifically organized for women's membership; these groups have helped promote interest among women in these traditionally male-dominated sports.

This positive projection of the women's market for recreational goods and services is underscored by current trends in the employment and income levels of women. For the first time in history, a majority of women between 18 and 64 are employed, and demographers feel that this percentage will increase from the present 52 percent to 65 percent in 1987. Female purchasing power is also increasing not only in terms of the number of women who earn independent incomes but in their wage and salary levels as well. These economic factors greatly enhance the potential of the women's side of the leisure market.

Future Developments

The surge in the young adult population which will continue for the next few years is favorable for most segments of the recreation industry, especially for those selling equipment for active sports and outdoor activities. Headed by men and women of ages 25 to 34, this group is more than 50 percent larger than a decade ago and should increase by another 35 percent over the next decade. But even in the areas of less active sports, greater longevity, improved health care, and increasing numbers of people on adequate retirement plans strongly suggest a sturdy market for the relatively less strenuous type of activity.

Another favorable demographic factor affecting recreation industries is the geographic movement of population. Already a definite shift of the U.S. population to the South and to the West has occurred. During the next decade, the South is expected to increase its population by 20 percent, the Mountain States by 24 percent, the Southwest by 25 percent and the West by 18 percent, while at the same time large population centers in the East and Midwest will decline.

To understand the factors that have contributed to boom times for the recreation industry in general and for outdoor sports in particular, please see my full study. The sections on tennis, camping, boating, and skiing will analyze their current market performance and try to project their future growth.

TRENDS IN FINANCING AND AVAILABILITY OF CAPITAL[1]

Donald G. Schink[2]

Abstract.--The past, present and future of recreation enterprise financing is developed in this paper. Developers need to utilize all available methods of financing sound projects. The long-term solution to the problems depend on better information, improved educational programs, and a loan program tailored to the needs of this industry.

HISTORICAL PERSPECTIVE

Early travelers utilized small hotels, roadside cabins, restuarants, taverns and other service facilities for their needs. They often camped at the side of the road. Sportsmen generally felt that all public and private land was available to them for hunting and fishing.

The resort industry in many states got its start as hunting and fishing camps. These consisted of crude cabins with outdoor plumbing and a row boat.

From these beginnings, the recreation-tourism industry gradually evolved into what we know today. Included are resorts that cater to visitors during all four seasons, attractions that provide entertainment to large numbers of people, motels, restaurants, golf courses, ski hills, and all of the support enterprises.

The commercial recreation sector has been enhanced by the development of many national, state, county and city parks and recreation programs.

Recreation enterprises have generally been small, family owned businesses, often located in remote locations. They often have been under financed and having managers with little training or experience. The recreation industry is plagued with short seasons, unpredictable weather, government regulations and governmental competition.

In 1965, we held a public policy forum in Fifield, Wisconsin on the topic of "Financing for the Recreation Industry." It was attended by leaders from local government, the resort industry and bankers. The meeting was called because of the problem of securing loans to upgrade and expand resorts and other recreational enterprises. It was the conclusion of the leaders attending that:

1. There was a need for educational programs to improve the management of enterprises.

2. New governmental programs were needed to provide long term loans to recreational enterprises.

It would be interesting to repeat the Fifield conference of northern Wisconsin leaders at this time. Their recommendations might be about the same in 1980 as they were in 1965. Our basic problems remain.

The cost of capital has varied somewhat over the years but always seems to gradually increase. During the 50's and early 60's, interest rates for commercial loans were in the 5 to 6 percent range. From the mid 60's through the mid 70's the interest rates generally increased to the 8 to 9 percent range. In the late 70's, we saw a rapid escalation of interest rates with prime interest rates reaching as high as 15.5 percent.

Recent higher interest rates have been accompanied by shortages in the money market. Only the most profitable enterprises receive loans in times of high interest rates and tight money supplies. Recreation enterprises with their traditional low profitability end up on the bottom of the priority list.

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[1] Paper presented at the National Outdoor Recreation Trends Symposium, Durham NH, April 20-23, 1980

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Most financial discussions center around the availability of mortgage loans needed to finance recreation developments. We are also concerned with the amount of equity that must be invested by the owner/developer. In many cases this limits the size of projects that can be developed and contributes to the project's security.

ANALYSIS OF LENDING SOURCES

Commercial recreation enterprises have relatively few sources of mortgage financing for new or expanded businesses. They generally are banks, the Small Business Administration and the Farmer's Home Administration. In some instances, the Economic Development Administration has provided mortgage funds.

Banks

The prime sources of funding for small businesses has been their local banks. They have the capability of making loans on the real estate, equipment, and operating capital. Banks generally have lending limitations to individual borrowers of approximately 20 percent of their capital and reserves. They also have a total lending limitation. Innovative bankers have provided mortgage dollars to clients by utilizing correspondent banks, by syndicating loans with other lenders and by utilizing SBA or FmHA guarantees.

Small Business Administration (SBA)

The SBA was established by Congress to aid, counsel and protect the interest of small business concerns in order to preserve the nation's free enterprise system. SBA provides loans or loan guarantees for land, buildings, equipment, inventory and working capital. Generally, money is provided by a participating bank with SBA guaranteeing up to 90 percent of the loan. Loans do not exceed $350,000.

The scope of the SBA loan program in 1976 was provided in a paper prepared by Dr. Malcolm Bevins (Table 1). Similar information for 1977, 1978 and 1979 was provided directly by SBA.

Table 1.--SBA Loan Approvals (Total U.S.)

INDUSTRY DESCRIPTION	NUMBER OF LOANS			
	1976	1977	1978	1979
Eating Places	1,983	2,620	2,739	2,668
Hotels, Motels and Tourist Courts	238	286	344	274
Gasoline Service Stations	482	587	557	565
Drinking Places	286	306	318	275
Miscellaneous Recreation & Amusement	132	201	223	200
Sporting Goods and Bicycle Shops	304	367	331	306
Aircraft, Go-Cart, Motorcycle Dealers		119	101	96
Gift, Souvenir, Novelty Shops	182	224	265	223
Boat Dealers	53	80	72	70
Sporting and Athletic Goods Mfg.		53	41	51
Trailer Parks and Campsites	42	52	64	46
Trailer and Mobile Dwelling Mfg.		12	12	11
Camera and Photo Supply Store	49	54	48	49
Boat Building and Repairing	24	46	43	66
Arrangements for Transport	36	28	41	60
Sporting and Recreation	20	20	20	14
Public Golf Courses	7	21	17	11
Small Arms Mfg.		6	3	1

Source: Mr. Richard P. Lewis, Director, Reports Management Division, Small Business Administration, Washington, D.C., Feb. 6, 1980.

Table 1 (con'd).--SBA Loan Approvals (Total U.S.)

INDUSTRY DESCRIPTION	VALUE OF LOAN ($ in Millions)			
	1976	1977	1978	1979
Eating Places	$153	$244.8	$292.5	$311.1
Hotels, Motels and Tourist Courts	$ 36	$ 56.6	$ 74.7	$ 61.3
Gasoline Service Stations	$ 24	$ 33.3	$ 39.9	$ 31.7
Drinking Places	$ 18	$ 23.1	$ 24.3	$ 26.0
Miscellaneous Recreation & Amusement	$ 16	$ 30.6	$ 29.7	$ 31.5
Sporting Goods and Bicycle Shops	$ 16	$ 22.1	$ 21.2	$ 25.9
Aircraft, Go-Cart, Motorcycle Dealers	$	$ 9.6	$ 8.5	$ 8.4
Gift, Souvenir, Novelty Shops	$ 6	$ 9.5	$ 12.1	$ 12.3
Boat Dealers	$ 5	$ 9.1	$ 7.3	$ 6.8
Sporting and Athletic Goods Mfg.	$	$ 7.4	$ 6.8	$ 9.0
Trailer Parks and Campsites	$ 4	$ 7.4	$ 10.0	$ 7.8
Trailer and Mobile Dwelling Mfg.	$	$ 1.7	$ 2.3	$ 1.6
Camera and Photo Supply Store	$ 3	$ 2.7	$ 3.0	$ 3.7
Boat Building and Repairing	$ 2	$ 5.8	$ 6.0	$ 6.2
Arrangements for Transport	$ 2	$ 1.1	$ 1.5	$ 3.2
Sporting and Recreation	$ 2	$ 2.1	$ 2.4	$ 1.3
Public Golf Courses	$ 1	$ 4.4	$ 3.7	$ 1.7
Small Arms Mfg.	$	$ 1.1	$ 0.5	$ 0.1

Source: Mr. Richard P. Lewis, Director, Reports Management Division, Small Business Administration, Washington, D.C., Feb. 6, 1980.

Farmer's Home Administration

The Farmer's Home Administration of the U.S. Department of Agriculture has the authority to make loans for outdoor recreation. They make loans under 1) Business and Industry, 2) Recreation Facility loans to farmers and 3) Community and Non-Profit Loans program. Commercial recreation enterprises can apply for Business and Industry loans. Under this program, the FmHA would guarantee up to 90 percent of the loan. Generally, FmHA makes loans of over $350,000. They cannot make loans in or near metropolitan areas (over 50,000 population).

Dr. Bevins reported the number and amount of loans made for recreation in 1972 and 1976. they are listed in Table 2.

Table 2.--Financial Assistance Programs Extended to the Recreation Sector (Total U.S.) by the Farmers Home Administration, USDA, 1972 and 1976.

PROGRAM	NUMBER OF LOANS		AMOUNT OF LOANS	
	1972	1976	1972	1976
Business & Industry (Recreation Loan Guarantee)	0	69	0	$37,858,028
Recreation Facility Loans to Farmers	48	38	$1,807,820	1,772,090
Community & Nonprofit Loan Program	9	17	N/A	3,800,000

Source: Data supplied by Farmers Home Administration, August, 1977.

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In comparison, Wisconsin's FmHA loans for recreation during the past five years is as follows:

	# Loans	Total Loaned
Nonprofit Corporation	2	$ 96,000
Municipality	1	340,000
Individual Recreation (Farmers)	96	2,789,000
Profit Corporations (Guaranteed)	7	8,193,000

Economic Development Administration

The EDA has authority to make loans for recreation enterprises in EDA designated areas. These generally are areas of high unemployment. However, most of their dollars are allocated to public works projects. It is difficult for commercial recreation enterprises to qualify for EDA funding because most are not labor intensive.

INNOVATIVE APPROACHES TO FINANCING RECREATION PROJECTS

We are in an era of tight money, fluctuating interest rates (generally higher), soaring construction costs, and shifting markets. Yet there are recreation projects that need to be built, and enterprises that should expand. Financial advisors will need to help prospective businesspersons, and developers utilize the financial tools available to them. Following is a review of some of the finance systems used by financial managers.

Industrial Revenue Bonds

Many states have a program to assist new industries to get started in the communities. Generally the municipality will authorize a municiple revenue bond issue so that they can be sold to investors as tax-free municiple bonds. However, in most cases the local municipality does not guarantee the bonds. The bonds are sold to banks, individual investors or mutual funds. The advantage is that new mortgage dollars are brought into the community and the borrower has a favorable interest rate. The bond rating is based on the individual project and the developer.

In some states, outdoor recreation and tourism related developments are eligible to utilize the industrial revenue bonding program. In other states, they are excluded or there are limitations on its use. New or amended legislation may be required in several states to make this program applicable to the recreation enterprise.

Tax Incremental Financing (TIF)

A new program for Wisconsin, Minnesota, Iowa, California, Oregon and perhaps other states is the utilization of Tax Incremental Financing to assist new developments. It has been used initially to revitalize blighted areas, but has potential use for some recreation developments. Basically in the Tax Incremental District (TID) created, the municipality uses taxes accruing from the increased value of the property in the district to amortize loans used for all or part of the improvements. It has financed land write-down, cost of providing city services, and in some cases construction costs. This program would seem to have the most potential in urban areas but with some application in the more rural communities.

Joint Venture Capital

A joint venture is generally when two or more parties gamble together on the success or failure of an investment. In the past, it has been a group of two or more investing a combination of land resource, expertise and equity to secure traditional mortgage financing to build a business. Many of the mortgage bankers and insurance companies now want to be included as a limited or full partner in the business. The advantage to the developer comes in the early years because she/he is not locked into rigid debt service payments. Each investor receives a percentage of the profits. The advantage to the lender comes in the form of early years tax credits and losses, a share of the appreciating value of the business and a continuing share of business profits. A joint venture in and of itself does not create any legal relationship between the parties. This is done through formation of a corporation or a limited or general partnership.

Limited Partnerships

A limited partnership is a legal business entity that provides a vehicle for developers to put together equity from several investors. In this arrangement, there is a general partner who provides all of the management with/without some equity dollars and a number of limited partners providing most of the equity investment. The limited partners offset profits, losses and tax credits of the partnership directly against other income. Limited partner investors generally have financial exposure only to the extent of their investment provided they do not enter into the management. They trade the right to participate in Management decisions for the security of limited exposure.

Condominium Financing

Some recreation related projects are financed by the user. This is usually done through the condominium vehicle. In this development strategy, apartments, campsites, boat slips, etc. are sold to the recreational user. In some cases, purchases are made by investors with the prospect of rental income. In condominium projects the developer/manager does not have the burden of capital costs to amortize out of operating income. This type of development was observed first in areas of high recreation demand and generally high land costs. There were condominium apartments and/or town houses on the ocean front in Florida and in the ski resorts of Colorado, condominium campgrounds in California and Michigan and condominium marinas on the Great Lakes. A variation of the theme is the use of Interval Time Share Condominium Sales. In this scenario, users purchase the use of the condominium unit for a specific period. For example, a user might purchase the use of the condominium for the first two weeks in July and would have the use of it every year during this period.

Stock Corporations

Equity capital can be accumulated for recreation developments through the sale of stock to investors. This allows for larger scale enterprises than might be possible by an individual with limited resources. It also spreads the investment risk to a number of individuals. Stock sale is used by both profit and nonprofit corporations.

The nonprofit corporation is a popular way of financing and operating many outdoor recreation enterprises. Most notable are golf and country clubs, hunting and fishing clubs, swimming clubs and tennis or racketball clubs. In this mode of development, the users are the owners and fees are set to cover costs of operation.

Public/Private Coorperative Ventures

A combination of public/private investments have been used in a limited degree in the past. Generally, it occurs when state or federal parks lease land or provide land for recreation development. Examples are the western ski areas where the ski slopes and trails are generally part of the National Forest and resorts and campgrounds leased to private operators by the U.S. Park Service.

Many rural communities with limited population will need to be innovative and get cooperation from all possible sources if they hope to provide the recreational opportunities enjoyed by more metropolitan areas. Think for a moment about the swimming club (nonprofit) and the high school that joined forces to build an indoor swimming pool in Madison, Wisconsin. This same concept could be used by smaller communities for a number of activities needing expensive facilities.

For example, an indoor tennis club requires 100 players (members) per court to have a profitable club. However, if the local school system needs additional physical education space and the facility were located properly it could be used by the school during the day. The tennis club could use the facility during the late afternoon and evening hours. Each would have the use of the facility during their prime time. By cooperating in a venture, small communities could provide more recreational opportunities to their people.

LONG TERM SOLUTIONS

The problems of financing and the availability of capital are not unique to the field of recreation. Over the years we have observed all other sectors experiencing similar problems and to some degree solving their financial problems.

The recreation sector has its special problems. They relate to the seasonality of many recreation businesses, low level of managerial abilities in many small businesses and generally low profits in the industry. The state of the economy and the fuel situation creates additional uncertainties.

Research Information

If the recreation sector is to compete for scarce equity and mortgage dollars, we must have the necessary tools. Information (facts) on the recreation sector is often sadly lacking. Without this information, it is difficult to prove the feasibility of new or expanded enterprises.

If we are to secure financing, researchers need to provide current, reliable information related to:

1. Supply of recreation facilities.
2. User studies giving profiles, demands, trends and expenditures.
3. Threshold studies showing the number of people required to support specific enterprises.

4. Investment costs for each type of recreation development.

5. Impact and costs of recreation/visitor spending.

6. Typical operating statements (standards) for the several recreation enterprises.

Education

Critical to the solution of financing problems is the delivery of research and information to decision-makers. This function is being carried out to varying degrees in the several states by University Extension Programs, the Vocational-Technical schools, colleges and universities and by individual consultants. One of the larger educational efforts in recreation is in University of Wisconsin-Extension. In Wisconsin a team of nine specialists (7.2 FTE) at the Recreation Resources Center work with some 50 county and area agents to provide research and information to recreation managers through workshops and individual assistance.

Information more than anything else will help solve our finance problems. This current, reliable information must be in the hands of the owner/manager/developer of recreation facilities. It must also be understood by the lenders. A knowledgeable developer dealing with an informed lender has the best chance of success.

Local people in a community often do not participate in the financial transaction. However, their understanding and support of projects can be critical to the projects success. We need to provide information on the benefits and the costs to the community of new or expanded enterprises.

Legislation

The recreation sector has long argued for financing programs that are tailored to meet their needs. Features desired would be:

1. Long term mortgages.

2. Modest equity requirement.

3. Fair interest rates (comparable to other good investments).

4. Repayment schedules designed to correspond with peak income months.

5. An agency that is informed and knowledgeable regarding recreation.

6. A minimum of paperwork.

7. Decisions in a reasonably short time.

8. A recreation sector program that will not need to compete with manufacturing, agriculture, retail and other service businesses for available financing.

TRENDS IN PRIVATE AND COMMERCIAL RECREATION

1979[1]

Arlin F. Epperson[2]

Although there has been substantial growth in the supply of outdoor recreation resources, there is no existing system or program to track annual changes in private and commercial facilities or enterprises.

This paper traces efforts to assess the supply of private recreation resources and provides the reader with information on where to look for data on the private sector.

INTRODUCTION

Few serious students of trends in recreation would not agree that recreation has increased in the recent past by almost any measure. The problem has been to accurately assess the amount of the increases.

One of the problems in these assessment efforts has been inconsistent definition of measures. For purposes of this paper "Demand" will be defined as the amount of participation, as measured by visitor days, participation days, contact days, activity days, or the dollars spent on recreation and leisure pursuits. "Supply" will be used to categorize the number of facilities, number of acres, or other measures of the physical facilities themselves rather than those who use them.

Several previous efforts to measure demand and supply are worthy of mention.

ORRRC REPORT

The first nationally recognized efforts to assess the demand and supply of private and commercial recreation was the Outdoor Recreation Resources Review Commission's report, "Outdoor Recreation for America," Volumes 1-27, published by the Federal Government in 1962. One entire volume "The Private Sector Study of Outdoor Recreation Enterprises" was given to the demand and supply of private and commercial recreation.

In reporting demand, the Private Sector study found that recreation areas and facilities provided by private individuals, nonprofit organizations, and businesses attracted some two billion visits annually. Three-fifths of these visits were made to commercial profit making enterprises.

While this early study of recreation participation by 17,342 households in 1960, and later followed up by personal interview surveys of 4,029 randomly selected households in 1972 have been the most widely used and quoted resource information in the recreation and park field, it may now be outdated as more sophisticated and accurate data have been accumulated by such private organizations as A.C. Nielsen studies, which will be discussed later.

Another assessment of private outdoor recreation enterprises was done for the Bureau of Outdoor Recreation in 1965, covering privately owned and operated enterprises in the continental United States which were in existence in the summer of 1965 (Chilton 1966). The inventory was assessed on the basis of a stratified random sample by counties and geographic locations within counties. Outdoor recreation enterprises were identified in pre-selected portions of randomly selected counties and total sample size of 2,102 was investigated. Facilities offering the following activities were inventoried: bicycling; boating and boat rentals; camping -- for instance tent, trailer, group residence, and day; caves; drama and concerts; drive-in movies; driving and sightseeing; lodging; mountain climbing; nature study; picnicking; shooting ranges; skiing -- water and snow; field trails; fishing, salt, cold and warm fresh water; golf; hiking and walking; horseback riding; hunting -- big and small game and waterfowl; ice skating; spectator sports; sports and play fields -- such as archery, tennis or softball; swimming beaches and pools; vacation farms; winter sports.

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[1] Paper presented at the National Outdoor Recreation Trends Symposium, Durham NH, April 20-23, 1980.

[2] Former Director, Missouri State Parks Jefferson City, MO

Because of the small sample size such an assessment can only be an estimate and can vary as much as 7000 enterprises (one standard deviation of sampling tolerance) in the total numbers projected. However this was the first attempt by anyone to project an estimated number of enterprises and the study does not purport to be 100 percent accurate.

Table 1.--Private outdoor recreation enterprises

	Number	Percent
Multiple water-oriented enterprises	7,856	6
Swimming	22,195	17
Boating	4,449	3
Fishing	10,138	8
total water-oriented	(44,638)	(34)
Multiple land-oriented enterprises	8,128	6
Lodgings	17,577	13
Camping(overnight and day)	6,273	5
Hunting	13,651	10
Active participation games or activities	25,991	20
Passive spectator and miscellaneous	15,591	12
total land-oriented	(87,211)	(66)
Total number of enterprises investigated	131,849	100

It can readily be seen that the assessment is far from complete, and many of the wide range of activities and facilities that were surveyed do not contain complete information; however, it was a beginning and called attention to the magnitude of this aspect of the recreation estate.

A further effort to assess the public and private recreation estate was done by the Bureau of Outdoor Recreation in its "Outdoor Recreation, A Legacy for America" in 1973. That report indicated that at the time the private sector owned or operated as much acreage as the public sector and involved more people and much wider variety of organizations and interests as well as activities. More than 50 percent of all recreation opportunities are directly attributed to the private sector.

A quick review of these supply data on recreation enterprises will suggest three major categories. (a) Commercial, (b) Private Membership, (c) Private - nonprofit, open to the public. A comparison of these holdings and enterprises in relation to public areas is shown in Table 2.

Table 2.--Number, acreage, and one year's attendance of public and private outdoor recreation areas

	Sites	Acres	Attendance
	number	------thousands-----	
Federal	2,127	446,616	537,065
State	18,614	39,701	420,468
County	4,048	2,977	194,317
Municipal	40,030	2,004	1,562,101
Total public	65,219	491,298	2,713,951
Private(profit)	131,626	30,025	1,251,876
Private (nonprofit)	1,000,000	467,000	800,000

An estimated 85,000 commercial enterprises on 131,000 sites with over 30 million acres provided over one billion outdoor recreation opportunities. These range from dude ranches, and resorts to hunting guides, and outfitting services, charter fishing boats, golf courses, shooting preserves and commercial campgrounds. Another 2000 enterprises provide outdoor recreation facilities and services relating to amusement and spectator sports activities.

More than one million individual enterprises provided outdoor recreation opportunities to the American people without a profit motive. It is estimated that they control over 467 million acres of land, and receive about 800 million visits a year. Of this number there were at the time of the study an estimated 47,000 private and quasi-private nonprofit organizations and an estimated 32,000 membership clubs in this group.

NATIONAL ASSOCIATION OF CONSERVATION DISTRICTS' STUDY

In 1973 the BOR initiated a program to inventory all of the private recreation businesses in the U.S. Cooperation was obtained from the National Association of Conservation Districts. The Association requested the assistance of the Soil and Water Conservation Service through their county Conservationists which cover over 96 percent of the nation's area, through 29,000 soil conservation districts. The local district conservationists enlisted the help of the state departments of conservation, extension specialists and others to inventory and categorize each outdoor recreation enterprise in each county.

Table 3.--National Association of Conservation Districts private sector recreation inventory--number of enterprises

Enterprises	Profit	Non-profit	Total
Campgrounds	11,619	6,087	17,706
Field sports	742	2,805	3,547
Fishing waters	6,931	2,892	9,823
Golfing facilities	5,395	3,765	9,160
Historical/Archaeological site	351	938	1,289
Hunting areas	2,231	3,861	6,092
Natural scenic	346	838	1,184
Picnic areas	528	1,277	1,805
Race tracks	998	243	1,241
Recreation	5,550	306	5,856
Rockhounding	85	17	102
Rodeo,zoo,amusements	2,469	894	3,363
Shooting preserves	793	1,192	1,985
Snow ski areas	510	105	615
Trails	2,103	672	2,775
Vacation farms	909	65	974
Water sports	7,697	2,729	10,426
	49,251	28,686	77,943

Number of states included=47

The Soil Conservation Service had previously been involved in efforts to assess the private recreation potential in the various counties in the nation. In 1962 the initial portion of a three phase plan was begun. Each county was to be inventoried concerning the private recreation enterprise in that county. Because of lack of emphasis by some states the inventory was never completed or published.

In 1970 additional efforts were made to complete the inventory and to do a county-by-county assessment of the potential for private outdoor recreation development to provide a tool for potential areas or sites for recreation business, a very noteworthy purpose. However this study has not yet been completed either, and few know of its existence. It is unfortunate that such efforts, although well-intended and adequately conceived, have not received sufficient emphasis or priority from top administrators to result in their completion.

A comparison of the total number of enterprises reflected in the 1965 BOR inventory and the totals above from the NACD study show some differences. There is no question that the NACD figures are by far the most accurate because of the total inventory attempted, and because of the limitations of the 1965 BOR study previously mentioned.

Table 4.--National Association of Conservation Districts, private sector recreation inventory--types of activities offered by enterprises

Activity	Number of Enterprises		
	Profit	Nonprofit	Total
Camping-canoe	213	99	312
Camping-day	829	1,108	1,937
Camping-pack	288	259	547
Camping-resident	2,413	2,094	4,507
Camping-transient	3,228	403	3,631
Camping-vacation	6,792	843	7,635
Archery	888	1,536	2,424
Shooting range	1,082	2,052	3,134
Tennis	1,756	2,332	4,088
Fish-ponds/lakes	7,256	3,721	10,977
Fishing enterprises	5,924	934	6,858
Golf-driving	1,783	780	2,563
Golf-executive	337	110	447
Golf-miniature	1,284	91	1,375
Golf-par 3	528	184	715
Golf regulations	3,538	2,903	6,441
Historical/archeological	543	976	1,519
Hunting total area	2,616	3,636	6,252
Hunting	4,123	5,600	9,723
Natural scenic	1,273	1,219	2,492
Picnicking	2,777	6,321	9,908
Racing-viewing	1,131	179	1,310
Recreation resort	3,047	164	3,211
Rockhounding	234	52	286
Rodeo,zoo,park	2,511	956	3,467
Shooting-preserve	506	934	1,440
Snow skiing	1,212	275	1,487
Trails total	3,317	1,812	5,129
Bicycle trails	549	182	731
Hiking trails	2,650	2,248	4,898
Horse trails	3,002	583	3,540
Off-road vehicles	472	161	633
Snowmobiling	821	460	1,281
Vacation farm	561	8	569
Vacation ranch	430	16	446
Boating-nonmotor	5,344	1,126	6,470
Boating-motor	4,665	339	5,004
Boating-launch, storage	10,479	2,163	12,642
Swimming	11,251	6,883	18,084

An example of an individual state inventory as part of the NACD study is given for later comparisons with other inventories yet to be discussed.

Table 5.--NACD Private Sector Recreation Inventory, state summary of enterprises Missouri

Primary Facility	Profit	Non-Profit	Total
Campground	343	185	528
Field sports	30	54	84
Fishing waters	467	76	543
Golfing fac.	128	143	271
Hist/Arch site	26	44	70
Hunting areas	37	130	167
Natural scenic	22	15	37
Picnic areas	13	39	52
Race track	35	31	66
Recreation res	429	7	436
Rockhounding	2		2
Rodeo,zoo,amus	118	68	186
Shooting pres	9		9
Trails	41	18	59
Vacation farms	3		3
Water sports	197	74	271
State totals	1,900	884	2,784

STANDARD INDUSTRIAL CLASSIFICATION SYSTEM(SIC)

The U.S. Department of Commerce and the Bureau of Census have produced a much overlooked source of valuable information relating to categories of recreation supply. Information is given on a number of categories of enterprises, total number of establishments, and total number of employees. These categories include: hotels, motels, tourist camps; trailer parks; sporting and recreational camps; motion pictures and services; cultural events; bowling alleys, billiards, pool establishments; other amusements such as dance halls; commercial sports, baseball, football, etc.; racetrack operations; golf courses; skating rinks; amusement parks; carnivals, circuses; other commercial recreation and amusements.

In most cases however, quasi-public agencies are not included. It also can readily be seen that many of the categories do not lend themselves to strictly outdoor recreation facilities, nor to categories consistent with other agencies or organizations interested in trend data.

THE PRIVATE OUTDOOR RECREATION ESTATE STUDY

A report submitted to the Heritage Conservation and Recreation Service (previously BOR) for the Nationwide Outdoor Recreation Plan in August, 1978 by Cordell, Legg and McLellan is probably the most comprehensive description of the private recreation estate for outdoor recreation to date. The study is actually a summary of three other studies done previously.

The first source of data in this study is the Nationwide Survey of Private Landowners and Managers (by the U.S. Forest Service and others, 1977). The survey was begun in late 1976 and samples non-corporate and corporate forest and range landowners concerning their land, the purposes and styles of management exercised, and the public recreational use policies in effect. The study focuses primarily on land use, and sheds little light on the numbers or purposes of the main commercial or private recreation enterprises for profit. It does however shed valuable light on areas that might be available in the future for recreation from private sources.

The second source of data in the study is the Inventory of Private Recreation facilities compiled in 1974-75 by the National Association of Conservation Districts, discussed previously. The data describe the developed recreation site opportunities provided by the private sector, by regions, according to the following classes of activities, and reports them in per capita supply and units per million population.

Class I:	high density facilities, such as swimming pools, golf courses, miniature golf, driving ranges, racetracks, zoos, parks and playgrounds.
Class II:	camping sites, shooting preserves and hunting areas, natural scenic areas, picnic tables, resorts, geological parks, snow skiing, trails, ORV areas, and vacation farms and ranches.
Class III:	water oriented sites and facilities.
Class IV:	historic sites.

The third source of data included in the study is a previous study of recreational properties, subdivisions, and vacation homes,[1] compiled by Richard Ragatz Associates, Inc.

While the summary study for HCRS does add a considerable amount of accurate data to the recreation supply, a valuable data on recreational land use, it still lacks much in answering the questions of trends for landowner use or numbers and types of private and commercial recreation enterprises which is so very much

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[1] Ragatz, Richard L. Associates, Inc. 1977. Private seasonal recreational property development, unpublished report done for the U.S. Dept. Agric. For. Serv., Southeastern For. Exp. Stn., Clemson, S.C.

Table 6.--NACD Private Sector Recreation Inventory
Missouri state summary of activities and enterprises providing activities

Activity	----------------Amount of measured units----------------						Enterprise		Total
							PROF	N/P	TOT
Special							16		16
Camping-canoe	473	areas					23	4	27
Camping-day	12652	acres	20149	guests			28	55	83
Camping-pack	79	areas					4	2	6
Camping-resident	9882	acres	11150	guests			27	58	85
Camping-transient	7450	acres	5835	veh-sites	19142	tent-sites	123	14	137
Camping-vacation	15741	acres	7227	veh-sites	6520	tent-sites	128	20	148
Archery	56	ranges	287	positions			16	27	43
Shooting range	879	positions					31	53	84
Tennis	363	courts					29	80	109
Fish-ponds/lakes	10467	acres	891	pond/lake			275	122	397
Fish enterprises	3234	acres	966	enterprises			208	6	214
Golf-driving	472	acres	924	positions			38	10	48
Golf-executive	428	acres	81	holes			4	3	7
Golf-miniature	124	acres	997	holes			51		51
Golf-par 3	97	acres	54	holes			4	1	5
Golf-regulation	17124	acres	2256	holes			67	113	180
Hist/Archeological	3091	acres	119	sites			32	41	73
Hunt total area	50744	acres					20	71	91
Hunting	25828	B/G-acres	28126	S/G-acres	13615	W/F-acres	59	132	191
Natural/scenic	13511	acres	15	road miles			33	30	63
Picnicking	4538	acres	5310	tables			194	113	307
Racing-viewing	2201	acres	131265	spectators	830	track miles	39	30	69
Rec resort	10143	acres	23505	guests			356	8	364
Rockhounding	7	acres	230	guests			1	1	2
Rodeo,zoo,park	8532	acres					132	69	201
Shooting-preserve	3361	acres					11	1	12
Snow skiing	40	acres	2200	pers/hr			1		1
Trails total	569	miles					44	32	76
Bicycling trail	19	miles	106	rentals			10	2	12
Hiking trails	449	miles					56	57	113
Horse trails	630	miles	1208	rentals	1209	boarded	73	21	94
Off-road veh	9304	acres	83	miles			7	3	10
Snowmobiling	10	acres	1	mile			1		1
Vacation-farm	3	acres	4	guests			1		1
Vacation-ranch	2785	acres	5092	guests			3		3
Boating-non motor	2201	canoes	44	sail	1378	other	294	26	320
Boating-motor	124	charter	2104	rentals			354	6	360
Boat launch/storage	3906	boats	578	ramps/lanes	5881	boat slips	490	23	513
Swimming	104807	beach lin.	12813	pond-acres	1088263	pool sq ft	411	171	582
							3694	1405	5099

Table 7.--Total number of SIC establishments, relating to outdoor recreation

SIC	Kind of Business	Total Number of Establishments				
		1954	1958	1963	1967	1972
793	Bowling alleys, billiard, pool establishments	12701	13916	15927	15497	14320
7932	Billiard and pool establishments	7639	7045	7069	xx	5847
7933	Bowling alleys	5062	6871	8858	xx	8454
79.Ex.792.3	Other amusement and recreation services	30532	42913	49244	52834	xx
791	Dance halls, studios, schools	2265	6869	7301	xx	xx
	Public dance halls or ballrooms	xx	875	869	xx	xx
	Dance schools, incl. childrens, pro.	xx	5994	6432	xx	xx
7941,7948	Commercial sports	2517	6028	6488	xx	xx
	Baseball, football clubs, etc., promoters	672	752	445	xx	xx
	baseball clubs	271	200	158	xx	xx
	football clubs	25	20	41	xx	xx
	other pro athletic clubs	376	448	246	xx	xx
	managers and promoters	376	448	246	xx	xx
7948	Racetrack operation, including racing stables	1845	5276	6043	xx	xx
	automobile racing	454	578	458	xx	xx
	dog race tracks	xx	xx	55	xx	xx
	thoroughbred horse race tracks	xx	xx	235	xx	xx
	standardbred horse race tracks	xx	xx	235	xx	xx
	dog and horse racing stables	xx	xx	5295	xx	xx
7942	Public golf courses	1014	851	1047	xx	xx
7945	Skating rinks	1799	2254	1274	xx	NA
7946	Amusement parks(incl. kiddie, theme parks)	2488	3682	997	xx	xx
7943	Coin operated amusement devices	6045	5264	5038	xx	xx
7949	Concession operators of amusement devices	xx	xx	2776	xx	xx
	carnivals, circuses	1090	801	363	xx	xx
	fairs	1090	320	1257	xx	xx
	other commercial recreation and amusements	13314	16844	22703	xx	xx

needed. It may however provide basic data on which to measure future trends.

STATE SCORP PLANS

Part of the requirements for states to be eligible for federal funds under the Land and Water Conservation Fund Act of 1965 requires that a State Outdoor Recreation Plan (SCORP) be done periodically by each state. A number of states have addressed this requirement differently; however in most cases, there is some private and commercial data available. Unfortunately there is little consistency between states on what was inventoried, or how it was inventoried, thus making state by state comparisons, or totals impossible from this source.

The SCORP for Missouri last done in 1975 included both a demand study as well as a supply inventory. The Missouri SCORP is discussed here only as an example of what may be found in other states and for later comparisons with other studies yet to be mentioned.

The Missouri SCORP did not isolate participation in private or commercial enterprises. The supply inventory however did include one "Type of Control" category shown in Table 10 as "other" which included facilities of the following agencies, organizations and institutions: church, civic, community, club, institution, employee organization, private or parochial school, private for profit, and private not for profit.

Unfortunately the following areas were not included: outdoor movie theatres, horse racetracks, miniature golf courses, auto racetracks, trampoline parks, go kart tracks, professional and semiprofessional football and baseball fields, and some university and college athletic facilities.

While the figures below may be meaningless in terms of comparison with other data, they are included for example purposes partially to show the need for consistent methodology to measure trends.

The inventory lists 1,608 agencies, businesses or institutions controlling 96,822 acres of recreational land. Apparently there was no effort to further scrutinize the data for additional information on private and commercial enterprises.

The 1979 SCORP for Missouri includes a more comprehensive inventory of public and private recreation opportunities.

Table 8.--Total acreage by type of control
Missouri SCORP, 1975

	Number	Acres
Federal	170	1,744,490
State	719	455,613
County	96	11,642
Municipal	1162	38,500
School	1293	7,396
Other	1608	96,822

This reflects a more indepth effort to consider the facilities that are private/profit.

A summary of the figures from the three Missouri studies brings to focus the problems we have been discussing. While the 1979 SCORP does not have numbers of facilities, the data is available to retrieve such information and it may be included in the final document which is still in draft form.

Table 9 .--Summary of enterprises

	Profit	Non-Profit	Acres	Total
NACD	1,900	885		2,784
1975 SCORP		1,608	96,822	1,608
1979 SCORP			214,568	

When compared with the NACD data, the differences are still significant; however, the methodology and accuracy are probably much more reliable in these two surveys than in the 1975 SCORP study.

SURVEY OF PRIVATE ASSOCIATIONS 1979

Realizing the inconsistency of data in government funded studies, whether nationwide or state by state, an attempt was made to contact a number of industry association groups for supply data. Those contacted fell into the following categories. (See Table 11.)

Questionnaires were sent to each of the agencies asking for any kind of participation or facility data that would indicate trends. A second letter was sent thirty days after the first to those who had not responded. Of the 133 questionnaires sent, responses were received from 40 and data was received from 19. While all of the agencies contacted do not relate to "outdoor recreation", they were included because of their close association to outdoor recreation and for other purposes not within the scope of this paper.

Table 10.--Statewide totals for each facility by type of ownership

ty	Unit	Federal	State	County	Municipal	School	Other	Private Profit	Total
area	Acres	1,992,262	442,181	940,680	81,322	35,226	65,401	214,548	3,771,620
-lake	Acres	139,413	3,608,713	743	8,652	59	3,576	911,423	4,672,579
-wetland	Acres	55,016	7,328	0	23	3	35	3,288	65,693
-stream	Miles	61	6,397	2	3,331	0	2,688	3,638	16,117
-river	Miles	403	8,042	20	108	0	130	39,265	47,968
(covered)	Spaces	3,374	249	454	422	6	196	6,737	11,438
(uncovered)	Spaces	338	44	532	350	0	583	2,353	4,200
s/boat ramps	Lanes	508	170	75	92	16	32	481	1,374
boat	Acres	83,204	360	51	690	0	3,749	2,220	90,274
boat	Acres	81,273	3,606	1,380	5,916	0	5,115	4,590	101,880
ski	Acres	126,190	360	65	645	0	3,749	2,300	133,309
/kayak/raft/tubing	Acres	153,690	1,750	470	3,284	41	4,492	5,883	170,215
ng	Acres	153,291	1,261	1,367	1,852	19	4,176	3,328	165,294
unheated	Lighted	59,070	7,110	8,658	942,585	17,100	391,215	1,014,120	2,439,858
	No light	8,721	15,294	24,880	109,225	5,625	75,840	382,484	622,069
heated	Lighted	1,253	0	20	32,823	78,320	53,383	191,928	357,727
area	Acres	1,008	41	0	2	0	0	35	1,107
ar golf course	Holes	0	18	36	495	72	388	1,161	2,170
golf course	Holes	0	0	0	0	0	9	18	27
ng range	Tees	0	0	0	20	35	136	448	639
ng docks/piers	Number	22	12	6	28	4	15	190	277
s/streams-fishing	Miles	173	13,355	3	50	0	331	137	14,049
s/streams-hunting	Miles	131	181	12	0	0	30	2	356
/impound-fishing	Acres	177,158	9,762	23,025	10,471	48	3,671	12,004	236,139
/impound-hunting	Acres	51,461	7,477	31	1,805	0	350	65,649	126,773
ishing	Acres	500	2,047	62	1,655	0	1,534	241	6,039
open to hunting	Acres	1,533,778	322,115	574	642	0	4,833	32,399	1,894,341
al sites	Sites	5,946	2,387	846	223	25	480	7,407	17,314
	Acres	931	6,080	810	922	9	324	905	9,981
only	Sites	126	171	147	19	0	78	3,547	4,088
	Acres	5	40	0	20	0	9	115	189
et-handball out	Lighted	0	4	0	11	26	9	3	53
	No light	0	0	4	37	52	7	0	100
s courts/outdoor	Lighted	9	4	14	735	165	65	159	1,151
	No light	7	3	54	329	453	56	171	1,073
tball crt/outdoor	Lighted	1	0	1	110	88	18	9	227
	No light	0	5	19	220	1,100	75	58	1,477
ry ranges outdoor	Points	15	158	167	68	114	100	15	637
rm-skeet/trap	Points	0	30	0	175	102	794	331	1,432
rm-pistol/rifle	Points	4	51	45	30	999	466	13	1,608
gliding	Acres	1	0	0	1	3	1	8	14

Table 10.--continued

ility	Unit	Federal	State	County	Municipal	School	Other	Private Profit	Total
llooning	Acres	0	0	0	0	0	1	10	11
el plane	Acres	0	10	32	51	0	5	0	98
ig. sites-sheltered	Tables	209	494	1,121	5,307	147	764	1,192	9,234
	Shelters	38	125	116	1,050	24	223	618	2,194
ig. sites-unshelt.	Tables	900	2,595	3,020	5,711	939	1,754	3,452	18,371
	Acres	298	656	636	1,472	16	323	317	3,718
d/toboggan/tubing	Acres	3	40	6	338	23	112	53	575
skating-natural	Acres	500	936	20	148	5	529	40	2,178
skating-artificial	Acres	0	0	0	0	0	0	0	0
slopes	Acres	0	1	0	0	0	0	5	6
s	Acres	2	0	143	85	0	0	564	794
dlife view. areas	Sites	9	25	11	8	3	30	14	100
erpretive center	Centers	16	10	8	11	1	12	7	65
t/Arch sites	Sites	8	40	52	144	3	26	11	284
ned vistas	Number	11	18	5	28	0	2	1	65
hitheatre-developed	Seats	875	640	160	28,561	101	6,216	197	36,750
ings-developed	Number	32	13	1	23	3	6	24	102
es-developed	Number	2	42	5	1	4	2	18	74
se arena/rodeo	Number	2	0	10	58	12	78	34	194
r grounds	Number	0	0	19	25	3	15	3	65
ping	Acres	21	16,434	80	495	0	2,494	1,363	20,887
nicking	Acres	45,418	26,546	432	2,791	715	7,085	810	83,797
e/walk	Acres	157,966	98,046	1,172	3,893	751	11,109	8,264	281,201
y area	Acres	15,108	543	1,391	5,370	1,654	3,434	376	27,876
dlife watching	Acres	128,804	99,900	2,552	2,067	163	15,148	12,675	261,309
k climb/rappelling	Acres	0	85	0	0	0	71	2	158
iler/camper	Sites	1,577	272	450	356	1,381	258	5,617	9,911
	Acres	1	0	0	1	0	0	94	96
kpacking sites	Sites	49	2,148	0	0	0	26	0	2,223
	Acres	0	7,042	0	0	0	666	8,005	15,713
up sites	Acres	199	42	129	129	30	297	50	876
	Number	2	12	79	48	0	69	32	242
up camps	Number	0	33	65	38	0	314	24	474
ycle	Mi trail	0	2	15	55	1	4	2	79
	Mi lane	0	0	8,625	17	0	0	0	8,642
se	Miles	137	201	81	18	1	44	257	739
ing/foot/backpacking	Miles	247	284	156	55	10	182	258	1,192
ure/interpret, walk	Miles	28	56	24	45	7	31	46	237
ure/interpret. drive	Miles	0	62	12	13	0	12	4	103
orbike/motorcycle	Miles	2	100	2	14	1	10	50	179
	Acres	63,960	6,258	50	3	0	1	1	70,273

Table 10.--continued

ility	Unit	Federal	State	County	Municipal	School	Other	Private Profit	Total
ess trails	Miles	0	3	9	12	18	1	14	57
r based trail	Miles	4	0	0	3	0	3	20	30
road 2-wheel drive	Miles	0	108	0	3	2	25	54	192
road 4-wheel drive	Miles	0	45	0	0	0	20	30	95
	Acres	0	6,257	0	0	0	0	0	6,257
untry ski/snowshoe	Miles	0	8	11	83	0	0	0	102
mobile	Miles	0	0	2	0	0	0	20	22
ratus area	Acres	10,918	48	3	506	714	51	887	
lot	Acres	10	6	0	19	5	9	7	
iple use courts	Lighted	12	13	2	112	6,085	37	59	6,320
	No light	0	20	2	210	18,488	45	36	18,801
iple use area	Acres	10,126	140	78	764	3,263	566	307	15,244
ball/softball field	Lighted	4	2	15	546	334	94	25	1,020
	No light	4	15	53	597	1,261	159	51	2,140
ball/soccer	Lighted	1	98	1	57	197	3	4	361
	No light	2	0	23	158	309	20	7	519

Table 11.--Industry Association survey

		Responses	Returned Trends
Amusements-fairs	9		
Back packing	1	1	1
Bicycle	9		
Billiards	1	1	
Boating	7	2	2
Bowling	5	2	1
Camping	6	3	
Campgrounds	5	1	
Canoeing	2	1	
Conventions	3		
Cultural	9	1	
Farm-dude ranch	3	1	
Golf	9	6	2
Hockey	1		
Hotels,motels,resorts	14	4	2
Motorcycles	3	2	
Planning	2	2	
Restaurant	4	1	1
Skating-roller	2	1	1
Skating-ice	1		
Skiing-water	1		
Skiing-snow	14	7	4
Snowmobiles	3	1	1
Swimming	1		
Tennis	7	2	2
Travel	11		
TOTALS	133	40	19

The response was disappointing to say the least. A majority of those who did return trend data only had information on a region or other fraction of the total industry itself. A problem with industry data is that it is industry produced. While the integrity of the various industries is not being questioned, the consistency of the reliability and validity leaves questions in the minds of many. The temptation may be too great for some. Several have their own outside funded foundations for education and research such as the golf and tennis foundations. Even in reporting the statistics these do not fully describe the methodology of their research.

PUBLIC SOURCES

Those desiring information on trends in private and commercial facilities and participation may be left to rely on occasional articles found in the news media, or those offered for a fee from private organizations. Several articles of note in recent times include the following:

Scherman, Tony, "The Thrill of It All," Family Weekly, November 11, 1979.

"Summertime and the Spending Is Easy," U.S. News and World Report, July 31, 1978, pages 16-17.

"How Americans Pursue Happiness," U.S. News and World Report, May 23, 1979, pages 60-76.

"Leisure Boom-Biggest Ever and Still Growing," U.S. News and World Report, April 17, 1972, page 42.

These furnish tidbits of information on participation, facilities, and spending of Americans on a variety of sports and leisure activities, although there appears not to be any consistency in the activities chosen.

The most comprehensive source of these isolated pieces of information on existing participation, spending and facilities is probably Epperson's book, "Private and Commercial Recreation" (1977) pages 74-80. However it too is a collection of statistics from a variety of sources, some of them highly questionable, and the data is now three years old.

Other limited sources have included studies done by government agencies but not published such as "The Importance of Recreation to the Economy" (Beaver 1978).

Data from private sources for a fee include the Travel Pulse, a research publication based on 5,000 indepth home interviews annually.

Another excellent source on sports and leisure participation in the private sector is the Nielsen studies. These have received very little attention in the public sector.

These studies are based on telephone interviews with some 3,000 households and representing over 8,500 individuals, and a study of thirty different sports. They provide trend and demographic information on individual participants as well as households and also include data on equipment purchases for most sports. They also include special tabulations covering a variety of topics for specific sports. Sports covered in the survey include: archery; baseball(hardball); basketball, indoor and outdoor; bicycling; boating; bowling; camping; fishing; football; golf; handball; hunting; ice hockey; ice skating; jogging/bicycling; motorbiking; paddle tennis; platform tennis; pool/billiards; raquetball; roller skating; sailing; snowmobiling; snow skiing; soccer; softball; swimming, indoor and outdoor; table tennis; tennis, indoor and outdoor; and water skiing.

Many sports equipment manufacturers and market analysts use the reports, available for a fee from the company. It appears that private enterprise has again accomplished something that public institutions have not.

SUMMARY

It is evident that there is no existing system or program either public or private that can track annual changes in private and commercial facilities or enterprises. There has been substantial growth in programs to track changes in participation of selected activities. However because this data has been produced by private enterprise, there is a substantial cost involved in obtaining the statistics. The economic feasibility will no doubt determine in the future which additional sports and activities are researched.

The only other alternative for the future, in terms of complete trend data, is to encourage the various industries themselves in groups to do so. This might be done through such organizations as the American Recreation Coalition, recently formed through the Discover America Travel Organization in response to gasoline allocations and possible rationing. This organization, a group of 48 agencies and industries relating to recreation, have met several times and perhaps could provide a vehicle for possible trend data collection. The limitations of industry produced statistics would still be present.

Another possibility is for the group such as the Travel and Tourism Industry Advisory Council, appointed by the Senate Committee on Commerce, Science and Transportation as an advisory arm to the Subcommittee on Merchant Marine and Tourism, to put this as a high priority item. While their first meeting was in July, and their agenda and minutes are not open to the public, there are a number of nationally known persons active in recreation, travel and tourism on the Committee.

It may be unlikely however that any governmental vehicle can be used to produce such a product because of the changing nature of politics, policies, regional differences in procedures and time required to accomplish the task. A recent effort at providing input into the National Recreation Plan for HCRS by a task force on private recreation is an example. Description of the problem is not important at this point, but those involved can attest to the problems with such studies and reports through traditional governmental agencies.

What is the answer? This author isn't sure. Perhaps this conference will help find some answers.

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TRAVEL TRENDS AND ENERGY

Paper presented at the National Outdoor Recreation Trends Symposium,
Durham NH, April 20-23, 1980

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Abstract.--This paper utilizes available data sources to construct a picture of adjustment patterns in vacation/recreation travel with respect to both past and prospective fuel price/availability developments. The increases in fuel prices coupled with supply uncertainties that have occurred during the 1970's have strained the traditional vacation patterns of many American households. Changes in the location of outdoor recreation centers will follow as a consequence of the new travel patterns.

INTRODUCTION

A geographer, Prof. Wilbur Zelinsky, incisively suggested that one of the four major attributes of the American ethos was excessive mobility. This mobility consists of many components including the ubiquitous journey to work, the journey for vacation and recreation and residential relocation. It should be noted, however, that when Zelinsky wrote his book, Americans had not experienced the trauma of the 1973 OPEC oil embargo, nor was the nation under the constant spectre of increasing fuel prices, and the ever pervasive gloomy forecasts, by various organizations, of impending shortages. Basically, therefore, the environment within which American mobility patterns are generated has changed from an almost frictionless space to a constrained high-friction space. The resultant spatial patterns have to be different. The aim of this paper is to briefly identify recent changes in recreation travel within the United States and the socio-economic foundations of those changes.

CONCEPTUALIZATION OF CONSTRAINED RECREATION TRAVEL

The present pattern of recreation travel is constrained at two interrelated levels: the national availability of gasoline and the financial reallocations by individual households. The national availability of gasoline has affected travel behavior by intermittent shortages due to supply cut-offs and by more effective control over the quantity available. While the latter has caused a gradual rise in the price of fuel, the former has occasionally created rapid price increases from which the general trends in fuel prices never completely recover. The impact of fuel price increases over a period of time has led to a change in attitudes. Gradually, more and more Americans now believe that the fuel crisis is real indeed and that technological solutions are many years from fruition. This attitude change has necessitated the search by families for ways of adjusting to these higher financial demands on the family budget.

The income of the average American family has been increasing at a rate that is below that of general inflation as well as fuel price increases. Consequently, since budgetary reallocations have not been sufficient to alleviate the financial burdens incurred by families because of these fuel price increases, many households have had, and will in the future have, to make spatial adjustments in their travel. Basically, the types of adjustments fall into four broad categories: activity space reduction, activity mode change, activity frequency reduction, and activity type change. Naturally, the combinations of these adjustment packages which an individual household adopts vary by the stage in the life cycle, the socio-economic status, the region of residence, and the changes in the price of fuel. In this paper, we will attempt to discuss the changes in vacation/recreation travel behavior using these four types of adjustments as our framework. The specific research questions that emerge from these discussions constitute our research foci: (a) What are the trends in the changes in the recreation activity space?; (b) What are the trends in mode shifts for recreation?; (c) What are the trends in the frequency of participation?; and (d) What are the shifts in the types of activities? Together these cover the broader topic of travel trends and energy.

THE DATA

One of the most frustrating things for researchers without the funds to collect their own data is the availability of the 'right' data. In such instances, the researcher has to use the best available data and in many instances such data may not be quite adequate for the specific questions under investigation. As a result, conclusions may be tenuous and may lack comparability of scale and geography. In spite of this, the findings may be useful for the identification of basic trends.

In our search for data, the authors investigated many data sources, and finally decided that they would use information from the following sources:

1. Data from the 1975 Southeastern Wisconsin Regional Planning Commission (SEWRPC) Energy Use Travel Survey in which the authors were involved. That questionnaire was developed to determine how shortages and higher prices of gasoline have, in the past, influenced and may, in the future, influence the travel habits and patterns of households. The questionnaire was mailed to a random sample of 9,881 individuals in the Southeastern Wisconsin region during November 1975. Over 1,461 or 14.8 percent usable returns were received (Corsi and Harvey, 1978, 1979).

2. Data from the 1977 Nationwide Outdoor Recreation Survey's General Population Survey on outdoor recreation were also used. These data are based on a national sample of 4,029 households surveyed by telephone in June 1977. For this paper, we are interested in the questions dealing with the impact of present gasoline prices on the number of trips, the length of the trip, the frequency of trips, the mode used for outdoor recreation activities and the effect of possible gasoline price doubling in the next six months on the number of trips. The survey was conducted by Opinion Research Corporation of Princeton, New Jersey under contract with the Heritage Conservation and Recreation Service (formerly the Bureau of Outdoor Recreation).[1]

3. Data from the 1977 Nationwide Outdoor Recreation's Federal Estate Survey were also used. This survey, which focussed on some of the questions in the National General Population Survey, was conducted at selected recreation areas within the Federal Estate (i.e. all federally-owned land and managed at least in part for public outdoor recreation activity) during the winter, summer, and fall months of 1977 by the Heritage Conservation and Recreation Service (HCRS). A total of 13,729 interviews were completed.

4. The authors also employed data from the National Travel Survey, one component of the Census of Transportation conducted by the U.S. Bureau of the Census. Its purpose is to provide statistical data on the volume and characteristics of all non-commuting trips totalling 100 miles or more from origin to destination. All surveyed households provided information on the trips taken (such as mode of travel, trip purpose, trip expenditures, etc.) by every member of the household during the relevant year as well as on the general socio-economic characteristics of the household. The results from the three surveys conducted thus far for the years 1967, 1972, and 1977 are now available (U.S. Bureau of the Census, 1977, 1979).

5. Data from a survey of households in six metropolitan centers (Chicago, Dallas-Fort Worth, Los Angeles, New York City, Phoenix, and Salt Lake City) conducted in April and May 1979 was used. Approximately 1500 randomly-selected households received the survey in the mail. After follow-up efforts, the response rate was 23.1 percent. The direct focus of the survey was on actual and potential changes in recreation travel in response to the availability and price of fuel (Burke and Williams, 1979).

6. The authors considered a sampling of 1500 residents in the State of New York during November 1979. The survey assessed

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[1] Both the General Population Survey and the Federal Estate Survey are components of the 1977 Nationwide Outdoor Recreation Survey. The 1977 Survey is the sixth in a series of national household surveys conducted by the Heritage Conservation and Recreation Service and its predecessors, the Bureau of Outdoor Recreation and the Outdoor Recreation Resources Review Commission. The primary purpose of the 1977 Survey was to provide background information for the Third Nationwide Outdoor Recreation Plan of which it is an appendix. The Plan's will be published by the HCRS, U.S. Dept. of the Interior in early 1980.

actual travel behavior response to the huge increases in fuel prices and supply interruptions experienced during the summer of 1979 and anticipated changes in response to additional fuel price increases and supply restrictions. Although the survey emphasis was not specifically on recreation travel, it was included as an important travel category.[2]

THE ANALYSIS - TRENDS IN ACTIVITY SPACE

Although the SEWRPC survey was restricted to Milwaukee, its results concerning activity space reduction recreate a backdrop for analyzing the trends in this process. Elsewhere, and using the SEWRPC data, we observed that the number of households who said they would either cancel vacation plans or take a vacation of a shorter distance increases as they were questioned about their perspective responses to increasingly higher fuel prices.

Since 1975, the price of fuel has continued to rise, and if the intended adjustment patterns reported by Corsi and Harvey hold, the proportion of the population who have effected some modifications in their recreation space should be increasing. The 1977 Nationwide Outdoor Recreation's General Population Survey of 1977, reported that 49 percent of the sample population said that the price of gasoline at that time had caused them to make shorter trips for outdoor recreation activities. In contrast 47 percent said it did not. The 49 percent positive response indicates that a reduction in the activity space for outdoor recreation is increasing. From present data we cannot accurately determine the rate of spatial shrinkage in this activity space. However, we do have information about regional and socio-economic variations in this process. Basically, the data indicate that:

i. The percent of the sample population, in each of the ten Federal regions, who said they made shorter trips than normal because of the gasoline prices at the time of the survey, was higher than 44 percent. Overall, the high ratios of people who took shorter trips is encouraging indeed; it indicates the consistent reduction in the activity space.

ii. Regarding income, the data revealed that although all income categories exhibit appreciable percentage of people who took shorter distances, lower and lower-middle income families, with incomes of up to $15,000, showed a greater tendency to take shorter trips than families with higher incomes. For example, while 56 percent of the households with incomes between $6,000 and $10,000 said they took shorter outdoor recreation trips as a result of fuel prices at the time of the survey, the corresponding figure among households in the $25,001 to $50,000 income range was only 33 percent.

iii. The above pattern is reinforced by the data for various occupational groups. While under 50 percent of the households in the professional, managerial and clerical (sales) groups took shorter trips for outdoor recreation activities, the proportion was considerably higher for the other occupations.

iv. Reinforcing the dichotomy between higher and lower status families in activity space modification is the tendency for a higher percentage of those with under 12 years of education to take shorter trips in response to fuel prices than of those with more than 12 years of education. The respective percentages are 57 (among those with between 9 and 11 years of education) and 39 (among those with 17 years or more of education).

v. Other interesting results form that survey include the greater tendency for people in rural areas, households with larger families and non-whites to take shorter trips because of the price of gasoline.

Although the exact yes/no ratios were consistently lower, the above general tendencies emerged from the Federal Estate Survey conducted in the same year.

Comparison of results from the 1972 and 1977 National Travel Surveys indicate convincingly the increasing importance of shorter-distance trips in the travel patterns of American households as the country moved away from an era of inexpensive fuel and abundant supplies (1972) to an era of higher prices and supply uncertainties (1977).

In 1972 trips (for all purposes, including vacation, recreation, business, etc.) with a round trip distance of between 200 and 399 miles accounted for 39.59 percent of all trips, while the comparable figure in 1977 was 49.51 percent -- an increase of 9.92 percentage points. Trips in all mileage categories greater than 399 miles accounted for a smaller percentage of total trips in 1977 than in 1972.

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[2] Mr. Davis T. Hartgen, Director of the Planning Research Unit, New York State Department of Transportation, made the results of the 1500 household survey available to the authors for this analysis. This assistance was greatly appreciated.

The results are even more striking when the focus is outdoor recreation trips exclusively. In 1972 trips between 200 and 399 miles made up 47.8 percent of all outdoor recreation trips, while the comparable percentage in 1977 was 60.4 percent -- an increase of 12.6 percentage points. Trips in the 400 to 599 mile category fell by 3.43 percentage points from 20.99 percent of outdoor recreation trips in 1972 to 17.56 percent in 1977. In all other mileage categories, there were a smaller percentage of the total trips in 1977 than in 1972 (Table 1).

The above patterns are repeated when either vacation trips or weekend trips are analyzed. As opposed to the Milwaukee data or the Outdoor Recreation Survey, the National Travel Survey data gives the only concrete evidence of the actual reduction in mileage driven by Americans for various trip purposes.

In a more general way, the survey of six metropolitan areas during the spring of 1979 indicated that the substantial price increases as well as supply restrictions that occurred in that year further influenced trip distances for vacation/recreation travel. In addition, the results suggested that further adverse changes in price and supply of fuel would exacerbate the trend toward shorter vacation/recreation trips.

Table 2 shows the relationship between varying fuel price levels/supply restriction programs and vacation travel distances. About one half of the respondents who had travel plans at the time of the survey said they would not travel if fuel prices increased dramatically and/or restrictions were placed on supplies. Of those continuing to travel, a higher percentage would take shorter as opposed to longer trips. At currently pricing levels, 8.6 percent of the respondents said that their vacation trips involved less than 100 miles. However, if gasoline prices rose to $2.00 a gallon or rationing occurred, the corresponding percentages would be 12.1 and 11.2, respectively, including the approximately 50 percent who would stop traveling. Thus, among the travelers, the percentage of all trips accounted for by those under 100 miles would be approximately twice the 12.1 and 11.2 figures cited above. In contrast, at current pricing levels, 21.2 percent of the respondents have vacation plans involving trips of 2000 miles or more. However, that figure drops to 4 percent as gasoline prices rise to $2.00 a gallon and 4.4 percent under a rationing plan. Again, these figures would approximately double if non-travelers were excluded.

Finally, the New York State survey, taken in the immediate aftermath of a period in which gasoline prices rose 35 cents per gallon and supply shortfalls reached 13 percent for limited periods, showed a willingness among households to respond by taking shorter vacation trips. Approximately 16 percent of the households said that in response to the 1979 situation of price increases/supply interruptions they had moved their vacation destinations closer to home. Households were then asked what their response would be to gasoline prices of $1.50 per gallon and a 20 percent supply reduction (but no formal rationing program). In response to the higher price situation and in response to the supply shortfall, 22 percent of the households said they would vacation closer to home.

Although these latter percentages are somewhat lower than responses given to similar questions in the 1977 Nationwide Outdoor Recreation survey, we might make two observations. First, the New York State results may not be representative of the response. Second, between 1977 (the date of the Nationwide Outdoor Recreation survey) and 1979 (the date of the New York State survey) a number of households had already shortened their vacation distances. As a result, the percentage able and willing to make further reductions would be lessened. Unfortunately, the lack of comparability among data sets makes more definitive statements impossible.

From the available evidence, we can tentatively and very cautiously conclude that the rising price in gasoline has resulted in the substitution of nearby places for far away places for outdoor recreation. This reduction in the activity space for vacation/recreation trips reflects, conceptually, the increasing patronization of intervening opportunities and the gradual evolution of a vacation/recreation activity space characterized by extreme distance friction. With continued gasoline price increases, we expect this shrinking to continue, at least, for the next few years. This statement needs clarification. Present trends in technology as manifested in more fuel efficient automobiles and the possibility of more abundant alternative fuels would, to a limited extent, counteract the influence of rising gasoline prices. Consequently, we believe that, over time, the interaction of all these forces would produce 'optimally' compact outdoor recreation activity spaces. However, more concrete research is needed before more concrete empirically-based conclusions are possible.

ANALYSIS-TRENDS IN ACTIVITY MODE CHANGE

One of the most persistent tendencies in studies of mode change is the general unwillingness by the majority of Americans to give up the family automobile for recreation activities. The flexibility, privacy and comfort of the automobile over other modes explains, in part, this persistency. After the OPEC embargo, all the studies on mode change confirmed this persisting tendency. HCRS's 1977 surveys (the Federal Estate Survey and the General Population Survey) indicate that although the proportions of the population in various geographic and socio-economic groups that increased their use of public transportation for outdoor recreation are high, the shifts are not as dramatic as in the case of activity space reduction.

The results of the General Population survey showed that only 15 percent of those surveyed said that the price of gasoline at the time of the survey had caused them to use public transportation for outdoor recreation in contrast to the 47 percent who made shorter trips. However, such variables as income, family, and race seem to influence the propensity to utilize public transportation more frequently. Individuals in the lowest income brackets were more likely than those in the higher income brackets to utilize public transportation for outdoor recreation travel. While 22 percent of individuals with family incomes under $6,000 said they used public transportation more frequently as a result of higher prices, the matching figure among those with income between $25,001 and $50,000 was only 9 percent. In addition, while only 12 percent of those in family units of two members said they used public transportation more frequently, the comparable figure among those in family units of seven or more members was 27 percent. Finally, while only 12 percent of the white respondents said they used public transportation, the matching figure for blacks was 33 percent.

Results from the 1972 and 1977 National Travel surveys reinforce the argument that fuel price increases/supply uncertainties have not separated Americans from their automobiles. In 1972, 94 percent of all outdoor recreation trips were by the auto-truck mode. By 1977, this percentage had shown only a slight decline to 91 percent. This change was accounted for by slight gains by the bus, train, and airplane modes. In 1972 these modes were involved in 1.8, 0.1, and 3.2 percent, respectively, of the outdoor recreation trips. By 1977, these percentages increased to 3.6, 0.2, and 3.9 percent, respectively. The doubling in the percentage of outdoor recreation trips accounted for by the bus and train modes, while of importance, are small in magnitude compared to total travel. The unmistakable overall conclusion from the two surveys is that through 1977 Americans preference for the automobile for vacation/recreation travel remained firm.

Results from the survey of households in six metropolitan areas during 1979 supports the proposition that the automobile/recreation vehicle is the dominant mode for vacation/recreation travel. Table 3 clearly shows that additional fuel price increases above the current levels at the time of the survey would bring about major changes in the decision of households to travel and only modest increases in the use of public transportation. Thus, the use of airplanes increases from 19.9 percent of the respondents with the level of gasoline prices at the time of the survey to 23.9 percent with gasoline at $2.00 per gallon. At current gasoline price levels, 2 percent of the respondents use trains for vacation travel, according to survey results. This figure increases to 3.3 percent as the price of gasoline increases to $2.00 per gallon. Somewhat surprisingly, data in Table 3 shows no increase in the percentage of respondents utilizing the bus for vacation travel as the fuel prices increase to the $2.00 per gallon level. These results confirm the contention that public transportation modes will receive only modest increases in use as fuel prices increase with respondents preferring to cancel plans rather than to adopt alternative modes.

The questionnaire for those in the six metropolitan areas also examined the influence of higher fuel prices accompanied by a general rationing program limiting each vehicle to 40 gallons per month. The effects on mode choice for vacation travel reinforce the patterns observed in response to the price increases without a rationing program. The major differences are that the decision to cancel vacation plans is selected by a higher percentage of the respondents and that the decline in the rise of recreation vehicles is even more pronounced than the decline in automobile use. Indeed, with a rationing program and $2.00 per gallon gasoline prices the percentage of respondents using pickup campers, motor homes, and travel trailers declines to 0.0, 0.3, and 0.7 percent, respectively. These findings have special significance to the recreational vehicle industry.

Finally, the New York State study showed that a moderate percentage of respondents would utilize public transportation modes for vacations in view of recent and prospective fuel price increases and supply uncertainties. Thus, 15 percent of the respondents indicated that they used public transportation for vacations under current conditions at the time of the survey. It is important to note that the question did not indicate what percentage of these respondents would have utilized public transportation modes for vacation regardless of the energy picture. Nevertheless, the percentage suggesting they would use public transportation for vacations increased to 22 percent under a situation of $1.50 gasoline prices and the separate situation of a 20 percent shortfall. These percentages seem to be in line with results obtained in the 1977 Nationwide Outdoor Recreation survey.

In summary, the evidence indicates that while many households may be willing to change from a large to a small compact car, or to reduce the use of recreation vehicles, the majority are not willing to sacrifice the flexibility, privacy and comfort of the individual automobile. It appears that they prefer the alternative of cancelling the trip. This trend should continue in the foreseeable future.

ANALYSIS - ACTIVITY FREQUENCY REDUCTION

In 1975, the study by Peskin and his coworkers in the upper income suburbs of Chicago observed that the gasoline shortage during the OPEC embargo caused trips to be reduced in frequency. They also observed a tendency for trips to be linked into multi-stop journeys. Expectedly, the rising price of fuel since the embargo has continued to cause many households to institute such trip modifications. This conclusion is supported by the General Population Survey which indicates that in 1977, about 47 percent of those interviewed reduced the number of their outdoor recreation trips. The geographic and socio-economic variations in the patterns of activity frequency reduction is similar to that discussed for activity space reduction. Briefly, people with higher than average reduced participation rates tend to be males, generally between 25-44 years of age, with a family income of $15,000 or less, and with less than 13 years of education. Furthermore, they tend to be craftsmen (operatives), farmers, service-laborers and housewives. Geographically, they reside in rural areas, and tend to be non-white.

Some idea of intended reductions in the frequency of outdoor recreation activity can be interpolated from the responses given by the sample population in the General Population Survey to the following question: "If the price of gasoline doubled within the next six months, would this be likely to limit ot curtail the number of trips you might take by automobile for outdoor recreation activities?" Overall, 80 percent said they would. For all regions and socio-economic groups, at least 65 percent said they would either limit or curtail the frequency of trips; an increase of 32 percent over the situation in 1977. These changes are also evident from the Federal Estate Survey.

The survey of individuals in the six major metropolitan areas also establishes the rather dramatic effects that additional, substantial fuel price increases by themselves or combined with an overall rationing program will have on the frequency of vacation/recreation travel. Table 3 revealed that among respondents who had vacation plans, if fuel prices remained at the existing levels (Spring 1979), approximately 15 percent said they would not cancel those plans if fuel prices rose to $1.00 per gallon. The matching percentages in the face of fuel prices at $1.25 per gallon and $2.00 per gallon were 32.7 and 48.4, respectively.

The combination of higher fuel prices and a rationing program would produce even more dramatic effects on travel decisions. Indeed, with the introduction of a rationing program and no change in fuel price levels, 20 percent of the respondents would cancel their vacation plans. As fuel prices increase to a level of $1.25 per gallon and $2.00 per gallon, the corresponding percentages increase to 44.4 and 55.5, respectively. Indeed, under a general rationing program, individuals noted a preference for using their fuel supplies for work travel rather than saving them for vacations. Over 63 percent of the respondents said they would utilize their supplies for work travel rather than for recreation travel, while only 28 percent said they would not use their limited supply in that fashion. Unfortunately, the survey did not question respondents about the existence of alternatives for using their limited supplies for the journey to work. We might hypothesize that a higher percentage of those with alternatives would save fuel for recreation travels than of those with no alternatives.

The New York State survey revealed that 16 percent of the respondents said that cancellations of vacation plans was one change they had made in response to the fuel price increases during 1979. The percentage indicating that they would cancel vacation plans remained at 16 percent in the event of fuel prices at $1.50 per gallon and increased to only 18 percent in the event of a 20 percent supply reduction.

Again, these results differ somewhat from those presented in the six metropolitan area survey. Indeed, the percentage noting an intention to cancel vacation plans in New York State is quite a bit lower than the percentage of respondents in the six metropolitan areas giving such an indication. Yet, between the Spring of 1979 (when the six major metropolitan area survey was taken) and October of 1979, $1.00 per gallon fuel prices became a reality. As a result, in October 1979, $1.50 gasoline prices did not seem as drastic as they might have in May 1979. Indeed, the differences may reflect the general tendency for households to be more likely to indicate changes in response to hypothetical higher gasoline prices than to actually make those changes when the higher prices become a reality. In addition, the differences may be due to the differences between New York State residents and those in the six metropolitan areas.

The above discussion indicates that we would expect, with future increases in the price of gasoline and/or with the adoption of rationing programs, that activity frequency reduction would continue, although the specific magnitude of the reduction has not been definitively established. In many urban areas, such reductions may necessitate more pressure on urban forest resources and urban neighborhood parks.

ANALYSIS - ACTIVITY TYPE CHANGE

Activity substitution usually occurs either because of changes in the life cycle or because of economic factors such as cost of the equipment, cost of transportation and cost of participation. It can also occur because of changes in occupation or residential relocation. For the topic under study, cost of transportation, which directly impacts on other costs, is the primary consideration. Because of the increasing gasoline prices, we expect an increase in the number of people who have changed their outdoor recreation activity set. However, very little data are available on this very important topic. The following paragraphs summarize some of the facts that have been established.

Table 4 presents data from the National Travel Surveys regarding mode selected for outdoor recreation in 1972 and 1977. The data indicate that a substantially lower percentage of such trips involved an auto/truck with camping equipment in 1977 than in 1972. This mode accounted for 30.09 percent of the trips in 1972, but only 17.85 in 1977 - a decline of 12.24 percentage points. The decline in significance of the auto/truck mode with camping equipment, largely offset in the growth of the auto/truck mode without camping equipment, might be explained in part by the increasing importance of shorter trips for outdoor recreation in 1977 over 1972. Perhaps, with reduced trip distance there was a lessened tendency to bring camping equipment along. Unfortunately, more definitive statements about the significance of these findings concerning changing types of recreation activities is impossible given the data limitations.

A second fact concerning changing types of recreation activities in response to higher fuel prices/uncertain supplies is the decline in recreation vehicle sales in response to dramatic shifts in the price/availability picture. Thus, in the immediate post-embargo days, the sale of recreation vehicles fell by 40 percent (1972 vs. 1974 sales). Although sales gradually increased in 1974/1975, it was not until 1976 that they reached pre-embargo levels. The same shock waves hit the industry during the early part of 1979 as fuel prices increased sharply and spot shortages developed. Sales plummented 50 percent in 1979 over the 1978 period.[3] Although there are projections of slight sales increases during 1980, it appears that the rebound process will be slow and dependent upon the avoidance of additional shock waves.

Yet, this scant data does not directly address the important question of how individuals have changed their activity patterns in response to recent events. This remains a major research gap as yet unaddressed in the existing literature.

CONCLUSIONS

During the 1970's, the nation faced two traumatic experiences with respect to fuel prices and availability. First, during the Fall of 1973 and Winter of 1974 in the aftermath of the Arab oil embargo, gasoline prices nearly doubled and lines developed as significant supply shortfalls occurred. Then, during the Spring and Summer of 1979,

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[3] Data on recreation vehicle sales and forecasts taken from: "Marketing Report," Recreation Vehicle Industry Association, Chantilly, Va., 1979. Mr. W.R. Garpow provided a copy of the report to the authors. His insights concerning the recreation vehicle industry were also most informative.

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after four years of relatively minor price increases and limited supply problems, gasoline prices increased by at least 35 cents per gallon and supply shortfalls of 20 percent occurred in some areas. By utilizing available data sources, we have attempted to construct a picture of adjustment patterns in vacation/recreation travel with respect to both past and prospective fuel price/availability developments.

As summarized in Table 5, the four adjustment packages discussed in this paper have been and would be used in varying degrees. The most significant adjustments would be in the activity space reduction. An important component of these changes would be the gradual emergence of strong regional outdoor recreation centers resulting in the replacement of the present three-tier hierarchy (national, regional, and local recreation centers) by a two-tier hierarchy (regional and local recreation centers). In this process, the forest resources around large metropolitan areas would be in increasing demand.

As noted, data from existing surveys give a clear indication that there has been only a slight to moderate shift to various forms of public transportation for recreation travel. Yet, the data suggest that lower income households as well as younger individuals are willing to utilize public transportation for vacation/recreation travel. Unfortunately, affordable public transportation is generally not available to recreation sites. Thus, growth in public transportation among these population segments may be a function of government programs to provide energy-efficient forms of low-cost public transportation -- primarily bus transportation -- to increasingly more popular recreation sites in proximity to major metropolitan areas.

Also, prospects for recreation vehicles are not bright in the immediate future. Sharp fuel price increases coupled with supply interruptions have severely affected recreation vehicle sales. Long-term prospects for recreation vehicles are dependent upon improvements in their fuel efficiencies or changes in their use by households. For example, households may leave the vehicles in proximity to recreation sites and utilize their more fuel-efficient autos to travel to their recreation vehicles. This contrasts sharply with the current practice of driving the recreation vehicle from origin to destination. Such a practice would also limit the household to a specific recreation site. Other expected changes are summarized in Table 5.

The ability to forecast trends in recreation/vacation travel in response to higher fuel prices and/or supply uncertainties is hampered by limited data sources. Although certain trends emerge, many questions are left unanswered. Thus, survey respondents have been consistently stating that their vacation/recreation trip distances are decreases in response to fuel price increases. Indeed, the Census of Transportation showed that a substantially higher percentage of the recreation trips in 1977 than in 1972 were for shorter distances. Yet, the data give no picture of the specifics of the shorter trips. Are households focusing their recreation/vacation trips on regional/metropolitan sites exclusively? Alternatively, are they eliminating only the yearly trip to a national site, but traveling the same amount during the rest of the year? Do the changes in distance traveled for vacation/recreation travel mean a change in activities engaged in as well?

At present, although data sources have provided us with some basic information on trip distances, trip frequencies, and mode choice they do not enable us to answer the above questions. Yet, effective recreation planning during the 1980's requires answers to such detailed questions. To adequately answer such inquiries, data needs to be gathered about vacation patterns over time from the same households. In the absence of such detailed information, many of the planning assumptions and resource allocations may be inappropriate.

Americans place a high value on outdoor recreation. Results from the 1977 Nationwide Outdoor Recreation Survey showed that 57 percent of the respondents viewed outdoor recreation as very important while an additional 29 percent viewed it as somewhat important. However, the increases in fuel prices coupled with supply uncertainties that have occurred during the 1970's have strained the traditional vacation patterns of many American households. Alleviation or mitigation of such strains requires effective planning based upon data that is currently not available. Until such data gaps are closed, existing sources must be utilized to the extent possible to give indications of likely responses to continued fuel price increases and supply uncertainties.

Mr. Dana Younger, Outdoor Recreation Planner, Division of Nationwide Recreation Planning is greatly appreciated for his assistance.

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Table 1.--Outdoor Recreation Trips, Distance Traveled, 1972 vs. 1977.

Round Trip Distance	% of Trips 1972	% of Trips 1977	Difference 77 vs 72
200 to 399 mi.	47.80	60.40	+12.60
400 to 599 mi.	20.99	17.56	-3.43
600 to 799 mi.	10.60	6.23	-4.37
800 to 899 mi.	4.84	2.82	-2.02
1,000 to 1,999 mi.	6.82	5.35	-1.47
2,000 mi. and above	4.31	3.86	-0.45
Outside U.S.	4.64	3.78	-0.86

Source: U.S. Bureau of Census, 1977, 1979.

Table 2.--Relationship Between Fuel Price Levels/Supply Restriction Programs and Vacation Travel Distances - Major Metropolitan Areas Survey.

Travel Distance*	Price Levels/Supply Restriction Programs Current Pricing	$1.00/ gallon	$1.25/ gallon	$1.50/ gallon	$2.00/ gallon	40 gal./ vehicle/ month	None Available on Weekend
Less than 100 mi.	8.6**	8.5	7.6	8.5	12.1	11.2	13.4
100 - 249 mi.	9.5	12.9	8.9	6.7	7.1	9.4	9.4
250 - 499 mi.	21.3	18.8	16.1	13.4	10.7	13.8	12.5
500 - 999 mi.	18.1	17.0	14.7	9.4	6.7	8.0	7.2
1000 - 1499 mi.	12.7	10.7	6.3	4.9	2.7	3.6	4.0
1500 - 1999 mi.	8.6	7.2	4.0	1.3	1.8	1.8	3.1
2000 - 2999 mi.	11.3	8.9	3.1	1.3	1.3	2.2	2.7
3000+ mi.	9.9	8.0	6.0	3.6	2.7	2.2	2.2
Won't Travel	0.0	8.0	33.3	50.9	54.9	47.8	45.5

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*Only respondents who had travel plans at time of the survey were included.

**Numbers indicate percent of households responding in the given categories.

Source: Burke and Williams, 1979.

Table 3.--Relationship Between Fuel Price Levels and Mode Choice for Vacation Travel - Major Metropolitan Areas Survey.

Mode Choice*	Fuel Price Current Levels	$1.00/ Gallon	$1.25/ Gallon	$1.50/ Gallon	$2.00/ Gallon
Automobile	60.5**	48.4	31.4	20.4	16.2
Pickup Camper	4.9	4.6	1.3	1.3	1.0
Motor Home	4.2	3.9	2.9	1.3	1.3
Travel Trailer	5.2	4.6	2.6	1.6	1.3
Motorcycle	1.0	1.9	2.0	2.3	2.3
Plane	19.9	18.3	21.9	23.5	23.9
Bus	2.3	1.3	2.3	2.6	2.3
Train	2.0	2.3	2.9	2.9	3.3
No Travel	0.0	14.7	32.7	44.1	48.4

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*Only respondents who had travel plans at time of the survey were included.

**Numbers indicate percent of households responding in the given categories.

Source: Burke and Williams, 1979.

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Table 4.--Outdoor Recreation Trips, Mode Selected, 1972 vs. 1977.

Mode of Transportation	% of Trips 1972	1977*	Difference 1977 vs. 72
Auto/Truck w/o Camping Equip.	63.96	73.31	+9.35
Auto/Truck w Camping Equip.	30.09	17.85	-12.24
Bus	1.82	3.59	+1.77
Train	0.10	0.21	+0.11
Airplane	3.17	3.93	+0.76
Other	0.86	1.11	+0.25

*In 1977 trips in which different modes were used going and coming were categorized separately. This procedure was not utilized in 1972. As a result, for comparability, such trips were excluded from tabular presentation.

Source: U.S. Bureau of Census, 1977, 1979.

Table 5.--Gasoline Prices/Availability and Outdoor Recreation Activities - The Future.

Type of Adjustment Package	Attribute	Present	Future
1. Activity Space Reduction:	Shape	Shrinking	Optimal Compact Shape
	Tendency	Intervening Opportunities	Distance Decay
	General Pattern	National/Regional Sites	Regional/Local Sites
	Mode Efficiency	Increasing Importance of Fuel-Efficient Cars	Further Increases in Fuel-Efficient Cars/Technological Breakthroughs
2. Activity Mode Change:	Bus	Trace	Moderate Increase, Primarily Among Lower-Income Households
	Carpooling	Slight Increase	Some Appreciable Increase
	Train	Trace	Trace
	Air	Slight Increase	Moderate Increase, Restricted to Higher-Income Households
	Recreation Vehicles	Decline	Further Declines
3. Activity Frequency Reduction:	Periodicity	Decrease	Further Decrease
	Duration of Activity	Slight Change	Increase
	Multi-Stop Trips	Increasing	More Future Increases
4. Activity Type Change:	Rate	Increasing	More Future Increases
	Tendency	Determined by Interest	Partly Determined by Availability Nearby

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TRENDS IN STATE OUTDOOR RECREATION FROM PERIODIC TO PROCESS PLANNING: THE MINNESOTA EXAMPLE[1]

William H. Becker and George Orning[2]

After a decade of trial, a change in federal planning philosophy is forcing many state recreation planning programs to change. Ten years of experience showed that plans produced periodically -- every five years -- grew stale and failed to provide the flexibility necessary to meet changing recreation markets and environmental problems. Recognizing these problems, the Heritage Conservation and Recreation Service redrafted its planning guidelines to encourage ongoing planning processes, rather than static plans. This shift in emphasis, designed to give states the flexibility necessary to coordinate effective expenditures of Land and Water Conservation Fund (LAWCON) dollars, has required changes in the ways many states discharge their comprehensive recreation planning duties.

Under the periodic planning approach, states could receive up to five years' eligibility to use LAWCON funds. As new plans became due, states would reassess the public's rate of participation in outdoor recreation activities, reinventory the existing recreation facilities, seek public input on recreation issues, and determine acquisition and development needs for the next five years of action. Budgets and staff for recreation planning expanded and contracted on a five-year cycle like accordions.

In the ebb of the cycle, little staff power existed for data analysis and direction, channels of public involvement closed, and data and proposed actions grew stale. At the height of the cycle, staff time was occupied by the intense demands of comprehending and communicating the public's perceived needs for the next five years. In short, the periodic approach produced plans, but moved planners away from a role as continuous advisors to decision-makers.

The process approach seeks to level this cycle. By so doing, the planning staffs should be available to listen to concerned citizens, monitor resource acquisitions and development, give advice on fast-breaking issues, participation trends, maintain current inventories on recreation facility supplies and, most importantly, help decision-makers on a continuous basis.

Unfortunately, unless planners redesign their approach to planning, Process Planning will require a constant amount of budget and staff equivalent to the height of the five-year cycle. Only E. H. Porter's Pollyanna could foresee public financial support for a new cadre of permanent planners in state bureaucracies. Therefore, for Process Planning to come to fruition in state outdoor recreation planning, every possible economy must be used.

The primary economy possible is increasing efficiency in data collection and avoiding large-scale data collection for planning purposes that are not part of ongoing agency operations. This will free time for a more active role by planners in day-to-day decision-making.

Though the specific methods of implementation may differ from state to state, the general areas in which to look for economy hold true across all states: these areas are in the collection of resource, facility and user data, and in the collection of public input. Data inventories need to be collected on a continuous basis, must be computerized, and must be tied to the ongoing record keeping functions of state agencies and to the courthouse records of local governments. Public input processes must be designed as part of the ongoing input into more comprehensive decision structures such as state agency long-range plans, legislative committee processes and regional plans. With the shift to process planning, efficiency in data delivery becomes important. A publication format that accommodates continuous revision must be developed. States must develop and implement computerized management information systems that can quickly process planning data for day-to-day decision-making. But last and most important, states must train, employ and retain qualified staff, who will move toward a data liaison and a consulting role.

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[1] Paper presented at the National Outdoor Recreation Trends Symposium, Durham NH, April 20-23, 1980.

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EFFICIENCY IN RESOURCE DATA COLLECTION

The essence of economical information gathering is the use of secondary sources and ongoing, in-place data input channels.

Many secondary sources exist for resource data: state as well as U.S. Forest Service inventories of vegetative cover, Soil Conservation Service Soils Surveys and U.S. Geological Survey maps all provide ready data sets for planners. If the recreation planner can locate a central, preferably computerized, clearinghouse for these data, the bulk of resource data collection is complete. In Minnesota, the State Planning Agency operates just such a clearinghouse, the Land Management Information Center (LMIC). LMIC stores resource data on a computerized grid system tied to the land survey and courthouse records, allowing data mapping and the creation of new, more useful variables from the original data set. For example, if we want to produce a map of scenically attractive areas using Minnesota's topography, forest cover and nearness to water as independent variables, we can. All we must do is decide the data classes, determine proper scale and design map symbols and patterns for automated map production. Figure 1 shows a scenically attractive area map produced in just this way.

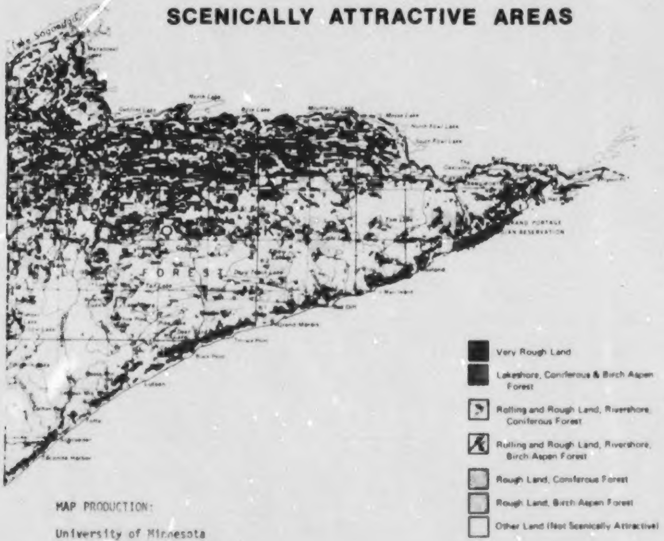
In addition to the more traditional resource data listed above, the Minnesota Department of Natural Resource has created a public land ownership data set that is LMIC system compatible. Unlike physical resource data, this cultural data changes often and must be continuously updated. Here is where ongoing, in-place channels of communication come into play. By redirecting the land ownership paper shuffle to include a key-punching step, land ownership records can be continuously updated. Thus, with minimal extra effort, quality data is maintained on an ongoing basis.

If the situation dictates, other types of data can be added to the system. For example, if mineral leasing in Minnesota accelerates to the point that it might threaten recreation options, mineral leasing records will be added to the system.

The state recreation planner, shifting from periodic to process planning, will be hard pressed to find a good secondary facility data source. In fact, state

Figure One

SCENICALLY ATTRACTIVE AREAS


FOREST
Very Rough Land
Lakeshore, Coniferous & Birch Aspen Forest
Rolling and Rough Land, Rivershore, Coniferous Forest
Rolling and Rough Land, Rivershore, Birch Aspen Forest
Rough Land, Coniferous Forest
Rough Land, Birch Aspen Forest
Other Land (Not Scenically Attractive)

MAP PRODUCTION:

University of Minnesota
Sperry Univac Corporation
1976
Map Design: George Orning

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recreation planning staffs usually keep the primary data set. The key to economy here is making sure the primary data set keeps pace with changes in the facility makeup. Keeping pace eliminates the need for massive, costly reinventories. Again, ongoing, in-place systems provide the efficient mechanism for updating facility data.

By tapping field facility inventories and expenditure records, facility can be kept up to date. In Minnesota, for example, the Division of Parks and Recreation and the Commissioner's special Trails and Waterways Unit have operations sections that administer LAWCON and matching state funds and acquire, develop and manage these facilities. These field people know where the state-owned facilities are located, when a new facility is built and when an old facility is abandoned. Figure two shows a validation form now being developed for the continuous inventory of the public access program.

Local LAWCON recreation funding programs may also be tapped for continuous data input. By plugging into the LAWCON paper work, continuous updating of a major portion of the facility data is achieved. Other recreation funding programs can also provide data. For example, in Minnesota many miles of recreational trail are annually added through the Grant-in-Aid Trail Program. The records of funded Grant-in-Aid trails are now funneled to the SCORP inventory for updating purposes, and are used as the official records of the trails operation unit. In addition, the computer mapping capability will be used to publish trail maps for public information.

Collecting facility data from private and federal sectors poses more problems because their development and acquisition programs lie outside direct state control. Therefore, facility inventory systems should be designed to expedite updating the private and federal sectors through mailed questionnaires and interagency agreements. In Minnesota the facility information is programmed to produce custom questionnaires for the administrator/owner of each inventoried facility, showing what we currently record as their facilities. When the private sector's mailing list is updated through public health records, a complete survey is easily produced on a biennial basis. Finally because only changes to the data base are entered, the workload is reduced substantially.

EFFICIENCY IN USER DATA COLLECTION AND PUBLIC INPUT

User data is an area where many record keeping systems exist for the most important recreation activities. By redesigning systems for hunting, fishing and boat licenses and for park camping permits, user populations do not need to be surveyed as often. The flow of licenses becomes a continuous flow of user information. A few simple questions added to each license or permit application yield significant dividends for planning and management. For example, the current SCORP work program in Minnesota includes adding to boat license applications questions on what lakes and lake areas are most often used by boaters. By continuously monitoring the distribution of summer water use we can better predict changes in boating patterns and utilize this information in our planning efforts.

Many recreation activities are free of licenses or permits; but in general these activities each hold only a small share of the recreation market. Where this is not the case, special data collection efforts should be undertaken. By narrowing the objectives of these investigations cost can be held to a minimum.

In the shift from periodic to process planning, public input can increase the workload and attendant expenses. If the process planner is dedicated to addressing fast-breaking issues and problems, personally meeting with the proper public to gain their advice will overburden and threaten the effectiveness of a small staff. However, the democratic process is founded on public input. As a result, many ongoing, in-place public input mechanisms can be tapped. In Minnesota the recreation planning staff does not hold many public meetings to gain public input. Instead, potential actions are reviewed through existing public forums. These include the Regional Development Commissions, each of which is charged with developing a comprehensive regional plan, the Legislative Commission on Minnesota Resources, which is a bi-partisan body made up of key legislators specializing in natural resource issues, and the Outdoor Recreation Advisory Committee, which represents elected local government officials from each development region.

Public input through existing forums is used on the primary yearly component of SCORP - The Annual Action Program. We deliver a draft to the legislature prior to the appropriations session. It is made available as one of the primary information sources legislators use to understand what public good recreation expenditures are supposed to accomplish. Reviewing the draft with constituents provides public input on upcoming recreation acquisition and development. When the legislators actually appropriate dollars to carry out the action plan, they assure that planned actions will be realized.

During the course of legislative debate, advice and support are provided by Regional Commissions which have reviewed the draft action plan with local units of government and interested citizens in their regions. In addition, the Outdoor Recreation Advisory Committee provides input from the perspective of regional policy makers.

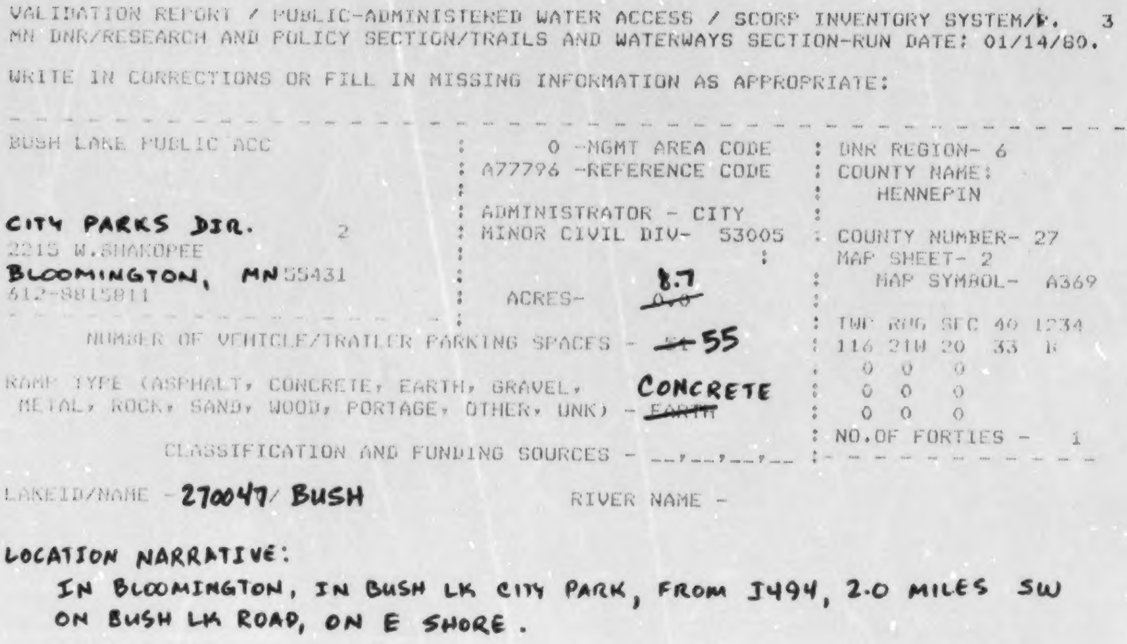
Finally, the state recreation planning staff is available to answer specific questions and give advice on recreation issues to legislators and local government officials.

EFFICIENCY IN DATA DELIVERY

The change from periodic to process planning not only provides for more flexibility but also demands more efficiency. In data delivery flexibility means efficiency. The process approach, with its dynamic data base, makes expensive printed data volumes less important. Meeting requirements of efficient, flexible planning necessitates a change in the format of State Comprehensive Outdoor Recreation Plans from typeset, bound, professionally printed reports to loose leaf data sets. The planning staff then can systematically update the areas of the plan where change occurs quickly. This approach assures that SCORP is continually current.

Distribution of a SCORP Report Series efficiently provides raw data and maps for state, regional and local planning efforts and for analysis of current issues. SCORP Report Series maps are provided at the state level: one example is a state map of public land ownership. Also, each Regional Development Commission has been supplied with an atlas map series to be used as an aid by them in development of their comprehensive regional plans. The raw data reports provide information such as region-to-region recreation occasion flows and detailed responses from specialized surveys.

Efficient planning must include the development of state recreation planning staff capable of assisting all planners in the state concerned with recreation. This liason role is vital to carrying the process planning approach to the local levels, where much of the recreation facility provision takes place. Staff must have the ability to clearly explain the process approach. They must be able to sort through ideas provided by recreation planners, understand their objectives and the problems they confront, and propose solutions. Finally, they must be able to direct planners in utilizing the wide-ranging set of computerized data, analyzing it and drawing conclusions. In short, for the process planning approach to succeed, state planning staffs must attain a high level of competence in research and analysis of recreation-related data, and be able to utilize the latest computer modeling and mapping techniques.



VALIDATION REPORT / PUBLIC-ADMINISTERED WATER ACCESS / SCORP INVENTORY SYSTEM/P. 3
MN DNR/RESEARCH AND POLICY SECTION/TRAILS AND WATERWAYS SECTION-RUN DATE: 01/14/80.

WRITE IN CORRECTIONS OR FILL IN MISSING INFORMATION AS APPROPRIATE:

BUSH LAKE PUBLIC ACC

CITY PARKS DIR. 2
2215 W.SHAKOPEE
BLOOMINGTON, MN 55431
612-8815811

0 -MGMT AREA CODE
A77796 -REFERENCE CODE

ADMINISTRATOR - CITY
MINOR CIVIL DIV- 53005

ACRES- 8.7 ~~0.0~~

DNR REGION- 6
COUNTY NAME:
HENNEPIN

COUNTY NUMBER- 27
MAP SHEET- 2
MAP SYMBOL- A369

TWP	RNG	SEC	40	1234
116	21W	20	33	B
0	0	0		
0	0	0		
0	0	0		

NO.OF FORTIES - 1

NUMBER OF VEHICLE/TRAILER PARKING SPACES - ~~[illegible]~~ 55

RAMP TYPE (ASPHALT, CONCRETE, EARTH, GRAVEL, METAL, ROCK, SAND, WOOD, PORTAGE, OTHER, UNK) - CONCRETE ~~EARTH~~

CLASSIFICATION AND FUNDING SOURCES - __,__,__,__

LAKEID/NAME - 270047/ BUSH

RIVER NAME -

LOCATION NARRATIVE:

IN BLOOMINGTON, IN BUSH LK CITY PARK, FROM I494, 2.0 MILES SW ON BUSH LK ROAD, ON E SHORE.

Figure 2.--Validation report. *Examples of forms sent to field:* This validation report is intended to be mailed to the field where it is reviewed and, if needed, corrected. Corrections are written directly on the validation form by field personnel. The returned form is then used to enter corrected data into the computer. The entry is made directly to the data base through an on-line connection or by batch processing.

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TRENDS IN LAND AND WATER AVAILABLE FOR OUTDOOR RECREATION

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Abstract.--A data base for assessing the availability of land for outdoor recreation does not exist. Information on related issues such as vandalism, easements, and land posting is scanty. Construction of a data base for assessing land availability should be a high priority for USFS and HCRS, and for SCORP's and the RPA and RCA assessments.

Outdoor recreation is by definition a land-using activity. The intensity of use may vary from a few visitors per acre per year in the far corners of the North Cascades to thousands per acre per year at Coney Island. It is of obvious interest, then, to review the current and likely future trends in land available for outdoor recreation. Completeness requires that land and water be considered together.

In this paper we outline the problems that must be considered in assessing and influencing recreational land availability in local areas.

To define the availability of land for outdoor recreation, we must classify land acreage by the following variables:

1. Physical characteristics (ponds, beaches, rapids, mountains)
2. Ownership (state, federal, private)
3. Management policies of the owners
4. Requirements of the activity
5. Accessibility - boat ramps, rights of way, roads, fencing.

No data base of this sort now exists. Creating such a data base should be one of the principal concerns of HCRS research, the SCORP process, and the U.S. Forest Service and Soil Conservation resource inventory and assessment processes now underway.

In this paper, we summarize bits of existing data to suggest how the problem may more fruitfully be studied. We think that our review leads to important policy implications. In searching for raw material, we queried administrators in state agencies responsible for parks, wildlife, and forestry, and federal land managing agencies. We received many helpful responses. We also reviewed a hefty sampling of recent state SCORPs. The written record reflects that inadequate attention is being devoted to the strategic long-term issues which we were asked to discuss here.[1] We suspect that much of the research and inventory activity addressing land supply and access is not well documented yet.

We make no effort to construct a new data base for this paper. Instead, we review the broad background trends in land ownership that affect recreation. We then discuss the problems of defining effective access to land for recreation and some of the factors that determine effective access. Finally, we note four major policy issues: should public subsidies be tied to access policies?; what is the future role of government in providing land for recreation?; how can the private sector role be promoted?; and, what are the issues in land acquisition?

MAJOR TRENDS

To characterize the major economic trends affecting the availability of land and water for recreation is perhaps more useful than attempting to add up all the numbers. General data are shown Table 1. Major forces at work in the past quarter century include:

-- The reversal of rural outmigration and revived settlement and construction in remote regions. This revival includes residential settlement, which directly changes land use and often produces posting. A far greater acreage, however, has been affected by speculative "recreational subdivisions" catering to speculators and well-to-do urbanites. Such developments now cover millions of acres of rural land, often blocking access to water and to major public reservations as well (U.S. CEQ, 1976; Payne, Gannon & Irland, 1975). Development trends on our nation's coasts have led coastal zone planners to identify public access to the coast as a prime policy issue.

Table 1. Outdoor Recreation Acreage - Ownership Trends (Million Acres)

	1950	1960	1972	1976	% increase
National Forests	181	--	--	188	4%
National Parks	23.8	--	--	29.6	24%
State Park & Recreation Areas	--	5.6	--	9.8	75%
Municipal & County Park & Recreation Areas	0.6	--	1.0	--	67%
Wilderness	14.0 (1945)*	--	31.2		122%

*USFS administratively designated wilderness

SOURCE: 1978 Statistical Abstract of the United States. U.S. Government Printing Office, Washington D.C.

-- The significant growth in acreage devoted to recreation through increased public ownership and leasing.

-- The growth in recreation activities which produce substantial disamenity has expanded some recreational opportunities and reduced others. Few lakes and forests are now havens for peaceable strolling, out of range of the noise of trailbikes, waterskiers and snowmobilers.

-- Sizable regions, on the other hand, have been devoted to back country activities, often with motorized and developed opportunities excluded. The potential exclusion of motorized activity has often been the most loudly contested question in wilderness area debates. Our informal survey found that a number of states have established wilderness areas on state-owned lands.[2]

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[1] In preparing this paper, we have found virtually no trend material on vandalism, other than the Alfano and Magill (1976) Symposium. We suggest that state and federal crime statistics, and the USFS RIM system, might be worth searching for this purpose. We also do not treat specialized issues regarding access to federal lands, such as range land fencing and coal development in the west.

-- Public agencies and private groups have made major progress in maintaining public access through agreements with landowners--acquiring easements, leasing and similar measures. The classic example, of course, is the Appalachian Trail (Burch, 1979). Snowmobiling, Hunting and fishing have also been, major areas of activity. Such steps have not yet been, it appears to us, widely applied to nongame wildlife, day hiking and cross-country skiing.

-- Private enterprises have expanded the supply of many recreation opportunities, including camping, boat access and services, lodging and in other traditional fields. Other specialized activities such as trout farms, cross-country ski areas, and the like have as yet not achieved a large role in their respective fields. Much more could be done to apply the capabilities of private enterprises to recreation supply.

-- Recreation developments requiring massive construction now face declining prospects for acceptance in the nation's high mountains and in vulnerable coastal areas. These developments usually serve high income clienteles, cause major local social disruption and can cause significant environmental impact. The prospects for increasing numbers of such developments in the next few decades are low. (Anon.,1975).

DEFINING EFFECTIVE ACCESS

In many respects, comprehensive data on land ownership, were it available, would not tell the true story about the availability of lands and waters for recreational use. The total supply available is not the most important factor controlling public availability. We need to define "effective access" with respect to each land and water unit.

A comparable problem has been faced by timber resource survey experts in estimating the supply of privately held timber available for harvest. Methods used in that field should be reviewed for applicability to assessing effective access for recreation.

Effective access is controlled primarily by the ability of recreationists to "get there." A unit of land or water is of little recreational value if the public is unable to get to it in the first place. In many areas, particularly in larger public and private holdings, effective access has been significantly increased since World War II through accelerated private and public road building programs.

As an example, the large private landholdings which constitute the major portion of the northern half of the State of Maine, were accessible only by float plane and/or canoe prior to World War II. Since that time, this area has become laced with a comprehensive network of private woods roads, open to the public on a regulated basis. In the future, road building will continue to open up more areas to recreation, but at a declining rate. According to some, of course, this increased access is a trend for the worse, since it adds to fishing and hunting pressure and reduces the wilderness atmosphere.

Closely linked to the impact of road building into previously unroaded areas, is the changing technology of recreational transportation. The use of snowmobiles and other off-road vehicles (ORV's) in conjunction with expanding road systems has opened up many areas previously limited in access. Increasing fuel costs will most likely stabilize the use of this access tool in the future.

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[2] Examples culled from our survey of the States: Hawaii, 93,000A. of Natural areas; W. Virginia, "several areas"; Massachusetts, 4 areas; Michigan, 53,000A; Pennsylvania, 224,000A of primitive and wild areas; Maine, 20,000 acres in Allagash Wilderness Waterway plus 200,000A of trust lands in Baxter State Park.

Effective access may be limited in the more traditional physical sense as well. Lack of boat ramps can close off otherwise "public" waters. Strip development along roadways has effectively closed off large blocks of public and private land since World War II. This trend is likely to continue into the future in areas of high population density and economic growth.

Conflicts between mutually exclusive recreation user groups can effectively limit accessibility on a unit of land or water for a given recreational user. User group conflicts have escalated considerably since World War II and will continue to intensify (Bryan, 1979). In the future these conflicts can be most effectively reduced by zoning recreational lands to separate conflicting users either in time or in space. This technique will not eliminate the problem completely, and user group conflicts will continue. In Maine, improved cooperation betwee x-c skiers and snowmobilers is reported. Such cooperation should be encouraged.

In many parts of the country, a traditional package of social, cultural and historical use of lands and waters may effectively preclude exclusion from private ownerships. This phenomenon serves to highlight the dichotomy between the explicit and implicit availability of lands and waters. Explicit availability is determined by specific legal provisions for accessibility. The most common approach for obtaining explicit availability is through public ownership. Implicit availability, on the other hand, usually does not stem from any legal provisions, but rather from historical patterns of use. For example, the woods of northern Maine have been used by residents for hunting and fishing for generations, despite the fact that they are almost entirely privately owned, and accessible only by private roads. Efforts by some owners to regulate access to these lands in the last 10 years have met with strong resistance from local residents (For case studies, see Hengsbach, 1970; Stewart, 1963).

In some cases, implicit availability may be incorporated into provisions of state law, as with the various Great Ponds Acts common in New England, which were enacted in Colonial times. These laws commonly hold that on Great Ponds the public has the right to fish, fowl, cut ice, swim and boat (Smith, 1950). In some cases, this historical ordinance provides for access to Great Ponds over private land. As population pressures increase, and as community cohesion weakens in our mobile society, implicit access to private land will erode in the future.

LAND POSTING

The posting of private land against use by others has disturbed those concerned with outdoor recreation, especially hunting and fishing, for decades. The ORRRC reports on hunting and fishing in the early 60's reported that access to private land was a major future priority for expanding the supply of these activities. Yet their reports did not offer extensive analysis of alternative policies to promote such areas. (ORRRC, 1962a, 1962b). Nor, disappointingly, does the Third Nationwide Plan emphasize the issue.

Considerable private land remains open to public use. The Third Nationwide Plan estimates that 32% of the noncorporate land acreage is open to the public (217 million acres) and 54% of the corporate land is open (40 million acres). Most of the land owned by forest products companies is open to the public. In the South, acreage of forest industry land open to the public for recreation rose from 19.5 million acres in 1962 to almost 25 million acres in 1974 (Convery, 1979, p.29; Cordell and Maddock, 1969; and Patrick, 1969).

Land posting results from social change and social conflict. In the past, rural landowners in many regions accepted the right of others to cross their property for the purpose of hunting, fishing and travel. When the people doing so were neighbors, and when the owner himself expected to enjoy the same right elsewhere, a supportive social consensus favoring public access to private land could exist. Today, the users are increasingly strangers from a distance. They at times damage roads with four-wheel drive vehicles, hot-rod snowmobiles, or hunt birds in the backyards of persons who disapprove of hunting. The consensus supporting public use wrinkles. When fences are broken and buildings vandalized, it collapses. The increased development of rural regions means that residents are closer together; but even neighbors are often strangers.

Our survey of recreation agencies and perusal of SCORP's yielded little comparative data on posting trends over time. In a Michigan study comparing 1929 to 1960, a sample of Upper Peninsula counties saw land posting rise 600%, while a lower peninsula sample rose more than threefold (ORRRC, 1962b, p. 97-98). This is the only study of posting trends we were able to locate. As an example of currently available data, results of several U.S. Forest Service studies are summarized in Table 2. They display considerable variation in landowner reactions to different public uses of their land.

The importance of these landowner preferences cannot be overemphasized. A change of 10 percentage points in the proportion of owners allowing a given activity can nullify the statewide effect of millions of dollars of outlays on land acquisition, leaving the general public no better off than before.

Posting is likely to continue to increase, based on the social trends now visible in rural America. To preserve access to land and water in the face of changing land owner attitudes will require that the major conflicts be addressed. User groups and public agencies will have to assure land owners that vandalism, littering and noise will be controlled. Owners may have to be paid for allowing recreational uses. Users will have to accept "corridoring" along designated

Table 2. Activities Permitted on Private Lands, Selected Northeastern States 1979's

Region and Item	Hunting	Fishing	Hiking	Snowmobiling	All Use	Total owners or acres
	....................percent	permitting...........				
Southern New England 1972-73 1/						
% of Owners	25	17	42	N/A	-	18,400 owners
% of Land	37	30	48	N/A	2/3	4.4 million acres
New Hampshire & Vermont 1973 2/						
% of Owners	51	37	51	50	51%	164,000 owners
% of Land	50	59	73	59	-	8 million acres
Kentucky 1975 3/						
% of Owners	24	6	12	1	39%	455,000 owners
% of Land	46	13	22	3	52%	11 million acres
West Virginia 1975 4/						
% of Owners	49	5	37	11	60%	124,000 owners
% of Land	58	26	44	11	65%	6.7 million acres

1/ Neal P. Kingsley, The Forest Landowners of Southern New England. USDA Forest Service, Resource Bulletin NE-41, 1976.

2/ Neal P. Kingsley and Thomas W. Birch. The Forest-Land Owners of New Hampshire and Vermont. USDA Forest Service, Resource Bulletin NE-51, 1977.

3/ Thomas W. Birch and Douglas S. Powell. The Forest-Land Owners of Kentucky. USDA Forest Service, Resource Bulletin NE-57, 1978.

4/ Thomas W. Birch and Neal P. Kingsley. The Forest-Land Owners of West Virginia. USDA Forest Service, Resource Bulletin NE-58, 1978.

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paths and corridors that avoid gardens, tree plantations and homes. These arrangements can only be made by organizations. Snowmobile groups have successfully used this approach in many states. (Nordstrom, Stephenson and Nies, 1977).

In States where citizens have enjoyed common law rights of access to seashore, to Great Ponds and to undeveloped wildland, the basis in custom exists to rebuild a consensus in support of public use and access. A possible model is the program of Public Footpaths in England, in which the public is secured the right of transit over private lands for recreation. The Footpaths are well marked and provided with occasional parking places off small rural lanes. Thus, a medieval system of public rights necessitated by the three-field system of farming and the lack of public roads has been turned into a basis for recreational use by visitors from afar. The essential rights are supported by a public consensus. (See Sidaway, 1979 for related information on trails in England)

In efforts to prevent the loss of public access through posting, most states have provided laws limiting land owner liability and otherwise promoting public access. These have been extensively reviewed by Bradley (1977), Quaterman (1975), and Strodtz and Dane (1968). These laws are probably of greater importance in reducing the anxiety level of large owners than they are in promoting public use on small ownerships.

POLICY ISSUES

Should Public Subsidies and Tax Breaks Be Tied to Public Access?

Our society offers a variety of subsidies, some trivial, some substantial, to private landowners. They range from low-cost wildlife bunches and extension pamphlets to the $16 million in public funds spent to fight the spruce budworm in Maine. We offer land owners help in cutting and planting trees, in planting cover crops, and for an impressive array of management practices, including construction of farm ponds.

Because of its political sensitivity, it is understandable that a coherent policy has never emerged concerning any obligation on the part of the beneficiaries of subsidies to allow public recreational use of the benefitting lands. We think that this issue must be addressed immediately. Where land owners benefit substantially from production or amenity - increasing public subsidies, they should be required to allow public access. There is no excuse for subsidizing timber stand improvement or cover crops on private estates closed to all public use. The task will be to design programs that protect legitimate land owner interests that are at stake, and to achieve their acceptance politically. Enforcing the access provisions will be a challenge.

An additional subsidy is use-value taxation. Should owners benefitting from lowered tax assessments be required to allow public use of the land or a portion thereof? We understand that in Michigan such a policy is in effect under that state's forest tax program, covering 1.25 million acres (Act 194, PA 1925).

Future Role of Government

The Federal Government has taken on an awesome responsibility for the nation's outdoor recreation needs. This is based on the large federal landownership, on the ease of raising revenue through federal taxes, on the multistate nature of outdoor recreation, on explicit economic development considerations and, frankly, on the unwillingness and incapacity of state and local governments to address the issue.

Specific groups have used their organizing ability to use government as a potent tool in advancing their interests. Hikers have led the fight to preserve wilderness areas and constrain the activities of ORV'rs on federal lands. Snowmobilers have worked with state programs to expand the supply of trails, and have taxed themselves to provide those services. Most successful of all, of course, have been sportsmen, whose taxes on equipment and successful lobbying are responsible for large programs of land acquisition, wildlife and fish management, and research. This is for a series of activities on which state and federal governments are demonstrably unwilling to spend general fund dollars. (Recall that a major source of LAWCON funding is offshore oil revenues and motorboat fuel taxes.)

On the whole, investors in intensively developed recreation such as marinas and ski areas have been modestly successful in receiving government support in terms of use rights on public lands, construction of roads, subsidized financing for buildings and pollution control facilities, and subsidized tourism promotion. But this seems to be changing. The opposition of environmental groups and nearby residents, financial difficulties, and the complexities of government permit processes are now the key factors affecting future developments of this kind.

One role played by government in recreation is the management of its own lands. Major opportunities for improved recreation supply exist on federal, state and locally owned lands. As an example, significant undeveloped opportunities exist on some 3 dozen Corps of Engineers reservoirs in New England (U.S. Congress, 1975). Much of the nonfederal land has the major asset of being close to the major cities.

Government affects recreational land supply profoundly through the tax system. Over the years, millions of acres of land have been preserved for public use by private charity. Prominent in fostering such donations have been the provisions of federal and state tax laws concerning charitable donations. Thus government, through its taxing power, has significantly promoted land supply for outdoor recreation.

Government sets the rules of liability for landowners and recreational users. One-sided views of this problem can fail to understand the issues in their full complexity. But clearly, on both public and private land, the allocation of liability appears as a significant role of government.

As an arbiter and definer of shifting public consensus on the content of property rights, government affects the right of the public to use privately owned land. Government is the only available instrument for expressing changing public attitudes about this problem. Unfortunately, it is likely that attitudes of small owners are changing away from allowing public uses of their land. Large owners still appear to accept a responsibility for public recreation access.

State and federal governments must play a major role in gathering and interpreting information, in developing and evaluating better management policies, and in basic research. A good part of the effort now invested in meaningless demand projections could profitably be diverted to studies of the costs and benefits of alternative policies for expanding the supply of recreation opportunity. The first step is a better data base on current effective land supply.

Public agencies have been crippled in the past by underfunded workloads in management, acquistion and enforcement. They have been unable to take active roles, except in a few cases, in promoting the application of private initiative to these problems. Numerous success stories exist. In our emerging era of financial stringency, we must look more and more to promoting our objectives by relying on the user groups themselves to organize and arrange for their needs.

The difficulty will be to employ private initiative in a manner that allows fair access to the general public. Already, significant opportunities for hunting are engrossed by individuals and private clubs leasing or owning land.[3] Often the members are more affluent than most. They have succeeded, however, in preserving their own recreation opportunities and in managing open spaces in a generally beneficial manner. But to remove the opportunity for exclusivity dilutes the incentive for private action.

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[3] There is no good national data on the extent of privately leased land held by hunting clubs. In Alabama alone, some 2.5 million acres were leased by hunting clubs in the early 70's (Alabama SCORP, Vol. 20, p. 82).

Promoting the Private Sector

Far more effort should be devoted to increasing the role of profit-making enterprises in supplying outdoor recreation. In the 1977 NACD inventory, 44,356 out of a total of 71,483 enterprises were operated for profit. (National Ass'n of Conservation Districts, 1977). This base of successful enterprises should be used to expand in existing areas like camping, and could be an innovative source of supply for less traditional fields now handled by the public and non-profit sectors. The Task Force Report (n.d.) prepared on this subject for the 1978 Nationwide Plan at least identified major issues, though it was flawed by self-serving argument and undocumented assertions. Serious research and case studies are needed to develop improved policies for promoting an expanded private role in providing recreation.

One key obstacle in promoting private recreation enterprise is the public provision of recreation at prices below cost. While this question is a complex and serious one, it appears to us that public recreation pricing policies should recognize thisconcern to a greater degree than is now the case. The enduring belief in "Davy Crockett Economics" -- hunting and fishing free of charge -- is a serious obstacle to progress.

In summary, the most important contributions that government can make to the supply of land for recreation are:

1. Develop more fully the latent opportunities on its own ownerships. Examples:
    (a) better access and land use at existing reservoirs;
    (b) effective access for winter recreation;
    (c) opportunities specifically for day use and short walks.
2. Use owned properties as cores for regional networks of water trails and land trails.
3. Promote self-help by organized private user groups and local governments. Perhaps the best example is the Appalachian Trial.
4. Effectively address the policy issues raised by public use of private land.
5. Promote development by the private sector.

Land Acquisition

The SCORPs and most traditional reviews have placed their primary emphasis on government acquisition of interests in land. Such interests have ranged from fee simple acquisition, to easements and other limited rights, to short-term leaseholds. While dramatic progress has been made in the past half century, much more needs to be done. Because of the steady pressure of development, which consumes three million acres per year, we can be confident that our current best efforts to acquire more land for public purposes will be appreciated by our descendants.

At the same time, fee simple acquisition for recreation encounters severe obstacles --

-- local opposition to removing land from tax rolls;

-- sentiment against government ownership and against single-purpose land uses;

-- the rapidly escalating cost of purchasing land.

These problems will cripple future land acquisition programs. To adapt, it will be necessary to pursue a mix of strategies. These will rely increasingly on less than fee methods tailored to specific purposes, such as fishing easements (in the 1960's, some 27 states had programs of acquiring fishing easements).

Programs of leasing private land should be de-emphasized in favor of methods offering more permanent protection. In SCORPs, several states report difficulty in maintaining leased acreage for hunting. The State of Pennsylvania operates one of the most extensive leasing programs, leasing 2.7 million acres from 16,000 cooperators. The State of Florida also has a large program.

Many states have traditionally planned land acquisition around providing access to water. This is a sound emphasis and should be continued, especially in view of the increased amenity value of waterways resulting from pollution cleanup. There is a serious danger that the recreation benefits of water pollution cleanup will simply be capitalized into private land values and not benefit the general public. For a useful review of one state's approach, see, the 1979 Connecticut SCORP (p. 143-163).

CONCLUSION

If sound recreational planning and development is to be carried out in the future, a comprehensive nationwide system for gathering information on the lands and waters available for recreation, classified by relevant variables, is essential. As we argue here, simply tabulating ownership and facility data tells us almost nothing about recreation land availability. The Heritage Conservation and Recreation Service (HCRS) should take lead responsibility for this activity, in close coordination with the U.S. Forest Service through its Resource Planning Act activities, and the Soil Conservation Service through the requirements of the Resource Conservation Act. HCRS should promulgate standards for assessment to ensure comparability and implement them through the existing State Comprehensive Outdoor Recreation Plan (SCORP) process.

This data base will be essential in evaluating existing programs and in suggesting cost-effective ways to increase effective access. It will allow a periodic appraisal of the true availability of land for recreation, a task which cannot be accomplished with existing data.

In research, case studies and pilot tests are needed to evaluate potential techniques for increasing the involvement of the private sector in providing and maintaining recreational lands and waters. Improved programs for increasing public access to private land, especially small holdings, are needed. Some of the effective examples of self-help by nonprofit user groups deserve analysis and emulation. Critical evaluation of existing programs, with particular emphasis on economic analysis of costs and benefits of their ability to provide needed recreational opportunities is needed. Only such a close look at various alternatives and their relative effectiveness in achieving expanded land supply will enable responsible agencies to keep up with the demands for increasing the land base available for outdoor recreation.

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TRENDS IN ORGANIZATIONAL MEMBERSHIPS AND LOBBYING

William R. Burch[1]

INTRODUCTION

People in the outdoor recreation business have long held certain inalienable and self-evident truths--recreation resources serve basic needs, the public needs to be professionally guided for "sound" recreational choice, nature is fundamentally good and all people can be trained to absorb that goodness and so on. Yet, of all these truisms, the most myopic is the faith that outdoor recreation is above politics.

Even the most casual observer of great American urban park systems can see much attention devoted to new facilities and very little to the dull business of maintaining old facilities and natural features. For the most part, Park Commissioners are political appointees and the most certain path for making a second ranked appointment powerful (Robert Moses is our guiding model here) is to build things. This has the advantage of awarding contracts to local businesses, of making local teamster and construction unions happy and ensuring something "concrete" to point to when constituents ask what you have done for them. The first principle of an effective outdoor recreation program is to build a constituency of powerful groups and/or to mobilize mass public opinion in support of recreation programs.

Trends in organizational memberships and lobbying efforts merely represent the barest tip of the underlying political realities. I will give most attention to these realities rather than the tip. We will consider the creation, allocation, diminishment, growth and exercise of social power as it influences outdoor recreation. For the most part we will be following theoretical clues rather than absolute, experimental proofs.

The reader who becomes queasy when the discussion turns to struggles between persons, groups and social classes for hegemony over others should be forewarned about out intentions. This paper is about that side of our political economy for which we go into the woods and recreate so we may pretend that such political realities do not exist.

Since our interest is in trends as they affect the management and planning of outdoor recreation facilities one must assume that we are interested in forecasting the future rather than merely reporting on the past. Yet, the humble art of forecasting has no hope unless we develop the rudiments of a theory. We will build our theory in as painless a manner as possible, though it will be based upon a social science tradition which assumes that the contours of the past and the future are the result of the struggle by groups to gain differential access to the scarce resources of earth and society. In short, one consistent characteristic of our species is the continuing struggle to get ahead and stay ahead.

Consequently, we will ignore our species altruistic characteristics and the inherent goodness of outdoor recreation to concentrate upon the inherent conflicts of outdoor recreation. We will suggest that the transition from a work-directed to a consumption-directed political economy is creating new class alighments, of which the outdoor recreation area is a prime indicator of essential conflicts. Next, we will consider some general explanations of power distribution in the American political economy and suggest how it relates to our understanding of outdoor recreation politics. Next we will consider some population characteristics that will affect the influence of outdoor recreation. This will be followed by an examination of participation trends and expenditures. We will conclude with a look at the future.

THE POLITICAL STRUGGLE OF OUTDOOR RECREATION

The American outdoor recreation resource is the product of continuing and often violent political struggles. It is a struggle as much for the hearts and minds of the masses as it is a struggle for landscapes. This is because outdoor recreation represents a fundamental turnaround from favored myths of early capitalist political economies which assumed that the lot of man was an unending, bleak and eternal scarcity which could only be partially held in check by an equally bleak, eternal and unending work. In contrast, the myth of the modern consumer society promises unending, ever mounting consumption which demands only the minimal amount of work. Let us be clear. This is a fundamental shift, whose origins are as recent as the 1950's and as old as the fabled South Pacific Islands. The conclusions of this change are just now being worked out in terms of greater laxity regarding sexual identities, gambling, pornography, drugs and significant increases in "adult" leisure villages, golden age clubs, environmental quality laws, open space preservation and emerging professions of recreation management, tourism and so forth.

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[1] William R. Burch, Yale University. I am most grateful to Richard Mordi for his struggle to track down "unavailable" data and Joe Miller for his always sound guidance and advise.

In short, the decade of the 80's should complete the transition from a world dominated by a homogenous small town, rural work ethic to one dominated by a diverse, urbanized, and sensate ethic. Reflect upon the early forest reserve acts in the late 1800's which were to remove from the vagaries of the market, resources such as forests and watersheds. Then early in the century there was the demand to extract utility from these reserves. Pinchot wanted to have professional foresters make the forests more efficient. Steve Mather wanted to have the National Parks serve a higher moral purpose in educating the masses. The moral tone of our wildlands was given its strongest boost in the 1930's CCC activities which were to do good for both resources and unemployed youths. Yet, by the 1950's and the Mission 66 era, a new fun morality began to enter the wildlands. New devices like water skis, downhill skiing, trail bikes and later snowmobiles and off-road vehicles (ORV) emphasized the search for disequilibrium and its mechanical ease in attainment. While camping was converted from roughing it to all the mobile comforts of home.

Outdoor recreation has been at the center of conservation conflicts because many of the issues have stemmed from two opposed perceptions--(1) the esthetic and moral appreciation of wildland experiences such as Theodore Roosevelt and Justice William O. Douglas and (2) materialist interest in exploitation such as the campaign by Walter Hickel and other "concerned" Alaskans to not "lock up" their resources. This political struggle has had at least five cycles. The first phase was where old wealth esthetes such as Gifford Pinchot and Theodore Roosevelt confronted the new corporate and regional monied persons regarding commodity exploitation. The result was the removal of many significant resource decisions from the realm of the market to the realm of professional decision. The second phase was the consolidation of resource rationalization in the 1930's which also saw leisure (free play) become recreation (organized play) under the guidance of professionals who now organized and rationalized what we once did on our own. In the 1950's, the third phase emphasized the "fun" of wildlands. Technological and financial innovation encouraged a shift from self denial and complicated skills to comfort and ease of performance. This period's rapid growth in the technological means of fun provides for a significant break between the masses and the rising new intelligencia. The masses continue to emphasize fun, comfort and diversion while the legislative acts pushed by the intelligencia stress a return to the stern morality of nature.

The message of the fourth phase in the late 1960's and early 70's was that resources are scarce, and work, pain and sacrifice are the natural condition of mankind. Therefore, we must regulate our behavior to match such a "reality." This most recent cycle represents a new struggle. Where prior struggles were between commodity exploiters and the esthetes and recreationists, the new struggle is between the recreationists and the esthetes. One cannot stress too heavily that the legislative gains of the environmental decade (1964-1974) were largely restrictive whether the establishment of wilderness areas and the rationing of their use or air and water quality standards or the National Environmental Policy Act. We should recognize that the amount of public land removed from commodity and mechanical recreation use has grown from around 9 million acres in 1964 to over 15 million acres in 1979. Figure 1 illustrates the growth of environmental regulations.

The 1980's are opening the fifth phase where these cavalier struggles will become more intense as the attainment of the standard American dream becomes more and more difficult. In an earlier period when lines were being drawn on relatively blank maps, there were advantages for large corporations to encourage "locking up" and therefore minimizing competition from "cheap" government resources, while recreationists and esthetes had enough room to ignore their fundamental incompatibilities. Today the issues are not "out there" but right in the backyard, and general principles tend to get ignored once the specifics are self evident. "Stopping the loggers" can be very satisfying until one realizes that wilderness designation means that one can no longer chase about on a snowmobile or ORV. Protecting the California desert is absolutely essential until one realizes that a recreation emphasis soon leads to preservation actions such that ORV access declines from nearly 100 percent to less than ten percent of the area.

Contributing to the tension between different visions of nature--utility and esthetics--are the large corporations that have grown up to serve the leisure markets. The high technology backpacking, biking, canoeing and other esthetic sports combine with "high quality" leisure villages and "ecologically" sound ski resorts to serve well educated professionals and their families. While major manufacturing

Table 1.--Comparison of enforcement actions and categories

------------Water Enforcement--------------	Dec. 1970- Nov. 1972	Dec. 1972- Nov. 1974	Dec. 1974- Nov. 1975
------------Water Enforcement--------------			
Federal Water Pollution Control Act[a]			
Civil suits referred by EPA(10 [g] or 309)	4	22	123[b]
All 311 oil spill referrals	30	995	2,260
180-day notices	175	-	-
Conferences	33	-	-
Abatement commitment letters	300	-	-
Criminal actions(Sect. 309)	-	15	-[b]
Administrative orders(Sect. 309)	-	455	829
NPDES referrals to states(Sect. 309)	-	6	-
Minor spills(Sect. 308)	-	7	-
NPDES information orders(Sect. 308)	-	5	-
Total FWPCA	542	1,505	-
Refuse Act			
Civil(EPA initiated)	89	15	-
Criminal(EPA initiated)	157	85	-
Non-filters	86	-	-
Civil(DOJ initiated with EPA assist)	49	-	-
Criminal(DOJ initiated with EPA assist)	54	-	-
Total Refuse Act	435	100	-
Ocean Dumping Act	-	8	7[d]
Total Water Enforcement	977	1,613	3,320[e]
------------Air Enforcement---------------			
All types for both stationary and mobile sources	28	440	1,477[f]
----------Pesticides Enforcement-----------			
Criminal cases	159	235	8
Civil cases	-	569	355
Recalls-formal only	-	64	81
Stop sale,use,removal,and seizures	23[b]	160	214
Citations	-	576	-
Warning notices	-	1,206	1,001
Import detentions	-	198	189
Civil penalty warnings	-	7	57
Total Pesticides Enforcement	182	3,015	1,905
------------Total All Actions--------------	1,187	5,068	6,702

[a] The FWPCA was amended in October 1972.
[b] Seizures only.
[c] Civil and criminal actions combined.
[d] Includes Refuse Act enforcement.
[e] Includes 101 notices of violation under Sect. 309.
[f] Includes 774 mobile sources.

and tourist centers combine to produce trail bikes, ORV's, snowmobiles and other mechanized diversions for their well-paid, highly skilled blue collar and business clientele. Consequently, some interesting rhetorical alliances are emerging. Boise-Cascade expresses its indignation at "elites" who would "lock up" wildlands from the enjoyment of ordinary ORV campers. While conservative members of the old wealth must hold their noses and join with some unwashed remnants of the now old, new left, as they seek to ban motorized access to nature and the backyards of their country estates.

Figure 1. New state laws and regulations, through July 1976

Up to and including	general	air	water	solid waste	land use	radiation	pesticides	noise	hazardous substances
	----------new laws----------------								
1969	2	5	3	12	1	13	13	0	0
1970	2	3	3	3	0	1	4	0	1
1971	5	6	13	13	4	4	9	1	2
1972	8	9	11	11	6	2	9	4	2
1973	7	4	15	10	4	1	9	2	1
1974	16	9	11	16	9	0	4	2	0
1975	17	16	15	13	25	2	17	1	1
July 1976	5	1	5	5	7	3	6	1	0
	------new regulations------------								
1969	0	17	12	6	1	14	8	0	0
1970	1	4	4	3	2	3	3	0	0
1971	1	27	14	18	2	5	8	1	1
1972	2	68	22	18	6	13	9	3	0
1973	8	32	41	15	4	11	7	1	0
1974	1	49	51	20	10	4	9	2	5
1975	5	96	83	26	12	3	12	2	1
July 1976	0	45	13	5	1	5	3	0	2

SOME THEORETICAL ISSUES

Power in America is exerted in a variety of forms--a few very wealthy families, some powerful economic units such as the Fortune 500 corporations and large labor unions such as the Teamsters, large government bureaucracies such as HEW and so forth. Yet, these more visible elements of our political life create and are dependent upon a great variety of voluntary associations. Arnold Rose (1954) suggests that such associations are important elements of democratic systems. He identifies three major functions of such associations--(1) they distribute power over a wide range of social life; (2) they provide a sense of satisfaction with democratic processes; and (3) they are social mechanisms for continually instituting social change.

The following table indicates the large number and range of voluntary associations. Trade, business and commercial organizations furnish, by far, the largest number of such organizations and though the number has grown, they have a smaller proportion relative to other organizations. Cultural, health, educational, scientific and religious organizations had relatively high proportions of the total number of organizations in 1973.

Yet, when we look at membership rather than the sheer number of organizations the hierarchy of organizations changes. Church affiliated groups are by far the largest, with sports groups, labor unions and school groups such as PTAs being the next most popular. Of course, membership numbers do not measure effectiveness of action by an organization. In general, the most effective organizations are those most closely related to our culture's central acquisitive goals. Industrial and trade associations seek favorable protection and minimal regulation from the government. Labor unions seek protection and improvements in the wages and working conditions of their members. Professional associations seek to protect and increase their monopolization of particular esoteric skills. Minority and ethnic groups seek reform and enhancement of opportunities for their members. In one sense all of these groups are struggling over a larger share of reasonably finite resources of wealth. Consequently, their interest in outdoor recreation locales and environmental matters is merely a continuation of their basic struggles, though with a different setting.

Still, in spite of a large number of voluntary associations, some legislative and administrative victories, and considerable media attention, the basic issues raised by outdoor enthusiasts and environmentalists have low priority. Matters of war, energy, crime, economic growth, airports, highways, public health, housing investments and, occasionally, racial or student troubles continue to assume greater importance at those nodes where key social decisions are made.

Delbert Miller's (1970) study of the visible decision-makers in Megalopolis found that their interest in environmental problems was low. He reports that "6 percent of their

Table 2.--Selected national organizations, by type
(Covers nonprofit organizations of national scope)

Type	--Number--			--Percent Distribution--		
	1968	1970	1973	1968	1970	1973
Total	[a]10,299	[a]10,734	12,628	100.0	100.0	100.0
Trade, business, commercial	2,832	2,895	2,922	27.5	27.0	23.1
Agriculture	491	508	609	4.8	4.7	4.8
Governmental, public administration, military, legal	301	346	407	2.9	3.2	3.2
Scientific, engineering, technical	488	548	818	4.7	5.1	6.5
Educational	[b]1,286	[b]1,383	869	12.5	12.9	6.9
Cultural	([b])	([b])	1,197	([b])	([b])	9.5
Social welfare	389	475	753	3.8	4.4	6.0
Health, medical	791	830	1,090	7.7	7.7	8.6
Public affairs	446	498	792	4.3	4.6	6.3
Fraternal, foreign interest, nationality, ethnic	640	610	485	6.2	5.7	3.8
Religious	794	806	729	7.7	7.5	5.8
Veterans, hereditary, patriotic	197	198	219	1.9	1.8	1.7
Hobby, avocational	423	444	608	4.1	4.1	4.8
Athletic, sports	318	336	448	3.1	3.1	3.5
Labor unions	237	226	240	2.3	2.1	1.9
Chambers of Commerce[c]	126	110	109	1.2	1.0	.9
Greek letter societies	351	334	333	3.4	3.1	2.6
Other, not specified	189	187	---	1.8	1.7	---

[a] Includes associations not shown separately.
[b] Cultural included with educational.
[c] National, binational, and international.

Table 3.--Membership in various groups and organizations

Type of group or organization	1974			1975		
	Total responding (thous.)	Number of members	Percent of total	Total responding (thous.)	Number of members	Percent of total
Fraternal groups	1,462	203	14	1,463	160	11
Service clubs	1,461	132	9	1,463	124	8
Veterans' groups	1,464	132	9	1,464	114	8
Political clubs	1,464	66	5	1,460	64	4
Labor unions	1,465	241	16	1,459	230	16
Sports groups	1,464	262	18	1,464	278	19
Youth groups	1,464	153	10	1,462	144	10
School service groups	1,462	259	18	1,461	206	14
Hobby or garden clubs	1,462	143	10	1,456	129	9
School fraternities or sororities	1,462	69	5	1,459	64	4
Nationality groups	1,462	52	4	1,454	37	3
Farm organizations	1,462	63	4	1,459	61	4
Literary,art,discussion or study groups	1,461	137	9	1,457	133	9
Professional or academic societies	1,462	193	13	1,461	174	12
Church-affiliated groups	1,475	621	42	1,465	588	40
Any other groups	1,451	151	10	1,450	126	9

interests are in air pollution, 3 percent in water pollution, 2 percent in solid wastes, and 4 percent in planning, zoning and preservation of open land--a total of 15 percent." Selznick (1966), Hardin (1967), Foss (1960a, 1960b), Cooley (1963) and others have demonstrated how, in the U.S., laws and agencies designed to protect and conserve ecosystems tend to become coopted by the relevant circles of power. The unintended consequence is that conservation law often tends to accelerate environmental deterioration while conservationists have not found their way into the interorganizational "web which depicts the structure of enduring community power." (Perrucci and Pilisuk, 1970:1044). This failure may reflect the peculiarities of power organization within the conservation community itself.

For example, parks, forests, wilderness areas, campgrounds, lakes, seashores and other physical locales are basic elements of the tourist industry. Yet, professional managers of these locales seldom recognize or accept that they are primarily in the people (tourist) serving business. Indeed, the real nature of the services these professionals provide is not unlike that provided by the Disney-type theme park professionals.

Part of the reason for seeing the connection between outdoor recreation services and other tourist services is that most professionals come from biologically oriented disciplines and are unwilling to leave the trees and see how they can *encourage* rather than *restrict* use of their facilities. Consequently, these keepers of our sacred groves often fail to note the connection between their careers and government responses to energy shortages. In the 1973 oil embargo crisis, the government declared that tourism was a "non-essential" industry. The Carter administration has sought to eliminate the U.S. Travel Service (which encourages many foreign tourists and their hard currency to visit our parks and wildlands), has major plans to curtail the recreational use of automobiles, pleasure boats and recreational vehicles.

One looks in vain for the park and forest managers who have protested this blow to their recreational clientele. Yet, even the casual observer can note that on weekends most autos have two or more people in them, while on weekdays they seldom contain more than one person in the bumper-to-bumper parade. Indeed, the highest, best, most conservative and efficient use of automobiles is likely to be as a devise of outdoor recreation. And though the outdoor recreation professionals have not participated, the tourist industry has struggled to protect leisure-time travel. They are just now entering politics to demonstrate the importance and social value of their industry. As they note (ASTA, 1980:39):

> It has been said that the force of real events ultimately pushed an industry toward the right decisions, whatever the countervailing arguments for inaction may be. The events witnessed by the tourism industry in the past few years should have demonstrated that the time is more than ripe for a decision to put in place a strong travel industry educational program dedicated to the enlightenment of government officials and the general public, stressing the important beneficial role of tourism in our nation's economic and social structure. It is time to replace alarmed innocence with sophisticated realism. The *tourism industry as a matter of self-preservation must develop a strong political constituency*. (Underlining in original quote.)

It appears that the tourism industry is going to try and join the oil, chemical, auto, clothing, shoe and other industries in demonstrating the linkage between it's health and the survival of the nation. For the most part, outdoor recreation and nature conservation are intimately connected to the success of the tourism campaign. Therefore it may be of value to explore some ideas on the nature of our nation's political structure.

There have been two major theoretical perspectives in the study of social power--elitist and pluralist. Each has a distinctive methodology, tradition and ideological tinge. Elitists such as G. William Donhoff (1967), C.M. Mills (1956), Floyd Hunter (1959) and T.B. Bottomore (1964) have tended to use some version of the reputational method to discover the power behind the visible decision makers. Pluralists such as Arnold Rose (1967) or Robert Dahl (1958, 1961) tend to focus upon the relevant leaders concerned with a specific issue and find a diffuse shifting power structure which varies from issue to issue. Miller's (1970) study of decision making and power in megalopolis regarding environmental quality problems is more in this latter tradition.

John Walton (1966) has argued that there are not one or even two types of power structures but four--pyramidal, factional, coalitional, and amorphous. Perrucci and Pilisuk (1970) suggest that a better means for examining the power structure is through examining the interorganizational basis of power. They argue, "...no one person commands all the resources sufficient for influencing or intimidating others to see things his way. Persons who influence decision-making, and are thus called powerful (whether in one issue or across many issues), must therefore draw upon the resources of others as well as their own in order to exercise their power." (Perrucci and

Pilisuk, 1970:1042). They then formulate a theoretical statement about, "...a locus of enduring power to which both elitists and pluralists may subscribe; i.e., the resources relevant to the existence of power are dispersed and reside in the interorganizational connections that may be mobilized in specific situations, particularly dealing with allocation of scarce values." (Perrucci and Pilisuk 1970:1042-3). In their study of a small midwestern city, they find a power elite which is not interested or involved in every community decision. Yet, in major policy conflicts only this elite is able to mobilize the actual power, common interests, and social ties which assure an "outcome favorable to its interests."

Their discussion, as Walton's (1966) identification of four types of power structures, suggest that power in indurstial societies is less a matter of individual characteristics than of group and community characteristics. Business, labor unions and government bureaucracies are more likely to assume and use a pyramidal form of power. They reflect an interest in mobilizing control over the scarce resources of social wealth. The factional pattern would be most characteristic of elected officials who are primarily interested in controlling the scarce resources of social power. While the amorphous pattern would be most characteristic of representatives from the world of art, intellect or the media of information where the primary contention is over the distribution of social deference. Coalitional patterns would emerge when one or more of these sectors are involved in a particular issue. I am, of course, aware of the degree of interdependence in these sectors, businessmen and politicians need one another as both need some validation or recognition from the realm of deference. It would seem that outdoor recreation and environmental affairs will most closely follow coalitional patterns.

Still, there is a need for some framework which permits us to note how coalitional patterns might develop and to identify the set of conditions under which certain patterns of power are relevant. The idea of social circles as suggested by Simmel (1955) and expanded by Kadushin (1966, 1968) and others seems a likely means for such examination. Kadushin (no date: 5-6) characterizes the social circle as a prototype of informal interaction systems which has three defining characteristics:

> "1. Members of a circle are linked to each other not necessarily through face to face interaction, but may be linked through third parties.
>
> 2. The network exists because it fulfills some need of its members--because they share some common interest which may be political or cultural.
>
> 3. The circle is not formal. That is, there are a) no clear leaders although there may be central figures: b) there are no clearly defined goals, though circles almost always have an implicit function...c) there are no definite rules which determine modes of interaction, though there are often customary relationships; and d) there are no distinct criteria of membership."

Kadushin (no date:6) then goes on to indicate how the social circle theory can be applied in the study of power and influence. In this study there are three formal questions involved:

> "1. The degree to which elites form one or more circles:
>
> 2. The degree to which the circles have tight or loose internal connections;
>
> 3. The degree to which the various circles (if there are more than one) in various sectors such as science, business and politics, are linked together into a 'super-circle'."

Until recently (at least in the U.S.), the basic strategy of the conservation movement has existed within the frame of social circles. The interests of the movement have been devoted to issues of open space and natural esthetics. Such interests are somewhat akin to support of the arts, good government and other activities which serve to validate that the children of "new wealth" have "earned" deference for their taste and sensitivity. The issues of arts, aesthetics and parklands have seldom touched the deepest concerns of an expanding, semi-capitalist society. In the early stages of the movement, offending industrial groups were seldom power companies, railways, auto manufacturers and so forth, but tended to be relatively decentralized industries such as the lumber industry. Further, the socialization of land took place in sparsely settled and relatively impoverished colonial states--Oregon, Montana, Kenya and so forth. Consequently, it has been fairly easy to establish a National Park in the State of Washington but nearly impossible in the State of New York or Connecticut, though equally desirable tracts of open space are available in the latter two states. Thus the main thrust of the traditional, oldline conservation community has been the protection of sacred wildland spaces and wild animals.

Such issues are no longer central in the new ecological concern but touch the most sensitive and tradition-bound areas--procreation, capitalist organization, democratic federalism, economic growth and so forth. And these newer concerns confront a quite different system of organized power. Thus in the past, persons could chair large corporations whose pollution flowed unchecked, while they devoted their civic talents to Lincoln Centers, Metropolital museums, national parks, zoological gardens and the Audubon Society. As noted earlier, it is difficult to imagine how these easy separations can continue when the crucial decisions are no longer "out there."

In the past, outdoor recreation and environmental protection could be seen as something "nice" to do by public benefactors and relatively weak government agencies. They were given hunks of unwanted land and minimal budgets to manage them. Today the growth in acquisition is nearing completion with only the difficult, unending, increasingly expensive and politically unrewarding maintenance demands stretching into the future. As Table 4 indicates, the oldest park systems--in our cities--are spending the bulk of their money on maintenance, while the younger federal and state programs are likely to enter a similar expenditure pattern in the late 1980's. Consequently, outdoor recreation is no longer simply frosting but is an important part of the cake (see the table on per-capita state expenditures).

Table 4.--Federal government expenditures for outdoor recreation

	1971	1972	Est. 1973
Capital Expenditures, Total	$228	$290	$289
Land Acquisition	134	161	117
Development & Other	94	129	172
Operation & Maintenance Expenditures, Total	220	273	284
Salaries & Wages	156	175	179
Other	64	98	105
Total Expenditures[a]	448	563	573

[a] Table based on reports received from individual agencies administering recreation lands within each governmental jurisdiction. Data include only dollars primarily used for public outdoor recreation purposes. Federal data was reported by the National Park Service, Bureau of Land Management, Bureau of Sport Fisheries and Wildlife, Bureau of Reclamation, Forest Service, Corps of Engineers, and Tennessee Valley Authority. Federal land acquisition expenditures also include those of the Bureau of Outdoor Recreation for the Redwood National Park.

In an era of shrinking tax dollars and fixed levels of public land, close attention will be given to the trade-offs between nongame and game species, wilderness and ORVs, air quality standards and fuel economy. Outdoor recreation enters the politics that Robert Lekachman (1973:78) calls:

> "a covert hunt for new privilege and government-created property, an avid search for franchises, airline routes, television channels, acreage allotments, tax advantages, ingenious subsidies, and grazing privileges at concessionary rates. The pricing decisions of the major corporations which exercise substantial power over their market amount to still less supervised creations of new property in the shape of excess profit."

Table 5.--State government expenditures for outdoor recreation (in millions of dollars)

	1971	1972	Est. 1973
Capital Expenditures, Total	$271	$338	$352
Land Acquisition	81	138	134
Development & Other	190	200	218
Operation & Maintenance Expenditures, Total	257	276	309
Salaries & Wages	172	191	212
Other	85	85	97
Total Expenditures[a]	528	614	661

[a] Table based on reports received from individuals, agencies administering recreation lands within each governmental jurisdiction. Data includes only dollars primarily used for public outdoor recreation purposes. The inventory includes all State agencies. Data adjusted for nonreported values.

Table 6.--Local government expenditures for outdoor recreation (in millions of dollars)

	1971	1972	Est. 1973
Capital Expenditures,total	752	883	1,216
Land Acquisition	299	312	430
Development & Other	453	571	786
Operation & Maintenance Expenditures, total	1,000	1,108	1,239
Salaries & Wages	707	781	870
Other	293	327	369
Total Expenditures[a]	1,752	1,991	2,455

[a] Table based on reports received from individual agencies administering recreation lands within each governmental jurisdiction. Data include only dollars primarily used for public outdoor recreation purposes. The inventory included all counties, cities with over 5,000 population, townships with greater than 25,000 population, park and recreation districts and regional councils. Cities with less than 5,000 population and townships with less than 25,000 were sampled and expanded to reflect the total universe. Both sampled and nonsampled data were adjusted for nonreported values.

Table 7.--Per capita expenditure on local parks and recreation, by state. Per capita amounts of selected items of state and local government finances: (Direct general expenditure)

1965-66		1975-76	
U.S. Average	6.05	U.S. Average	18.00
Median State	4.35	Median State	14.07
District of Columbia	19.37	Nevada	45.46
Hawaii	16.56	Hawaii	36.62
Nevada	15.44	District of Columbia	33.02
California	10.89	Maryland	32.60
North Dakota	10.19	Colorado	30.42
New York	9.17	California	29.40
Wisconsin	8.92	Minnesota	28.88
Florida	8.49	Washington	27.15
Illinois	8.41	Arizona	24.20
Minnesota	8.22	Florida	22.75
Maryland	7.46	New York	21.81
Washington	7.46	Illinois	21.58
Colorado	6.44	Wisconsin	20.14
New Jersey	6.26	Oregon	19.63
Michigan	5.94	New Jersey	19.58
Arizona	5.89	Michigan	18.87
Utah	5.76	Missouri	18.01
Connecticut	5.71	Utah	17.21
Missouri	5.65	Alaska	17.02
Oregon	5.37	Connecticut	16.85
South Dakota	5.32	Iowa	15.72
Georgia	5.08	Nebraska	14.90
Louisiana	4.80	Tennessee	14.45
Massachusetts	4.65	Alabama	14.27
Oklahoma	4.56	Oklahoma	14.15
Nebraska	4.35	Virginia	14.08
Texas	4.31	Louisiana	14.03
Pennsylvania	4.26	North Dakota	13.93
Iowa	4.23	Massachusetts	13.65
Ohio	4.23	Texas	13.41
Rhode Island	4.14	Pennsylvania	13.19
Indiana	3.50	New Mexico	13.06
Tennessee	3.43	Ohio	12.57
New Hampshire	3.36	Wyoming	11.40
Virginia	3.28	Montana	11.11
Kansas	3.26	Delaware	10.63
Alaska	3.23	South Dakota	10.60
Delaware	3.09	Kansas	10.42
Idaho	2.90	Georgia	9.71
Montana	2.86	North Carolina	9.71
Wyoming	2.71	Rhode Island	9.66
Alabama	2.60	Indiana	9.37
West Virginia	2.35	Idaho	9.06
New Mexico	2.15	Maine	8.46
Maine	1.89	West Virginia	7.34
North Carolina	1.80	New Hampshire	7.18
South Carolina	1.72	Vermont	6.68
Kentucky	1.54	South Carolina	6.63
Arkansas	1.45	Kentucky	5.92
Vermont	1.33	Arkansas	5.34
Mississippi	1.08	Mississippi	5.16

SPECULATING ON SOME TRENDS

The environmental and outdoor recreation organizations had their biggest membership booms in the 1965-1971 period. After that, as Denton Morrison (1980:8) observes, there was:

> "...a slowed membership growth, steady-state, and in some instances, the reversal of the previous growth trends. There was much shaking out of the voluntary groups. Particularly groups organized independently at local and state levels and those that had most of their support base in the youngest part of the population (e.g., students) tended to falter in viability, to decline, and in some cases to disappear. The larger, older, nationally based groups and a very few of the newer national groups (e.g., Friends of the Earth, Environmental Action) managed to consolidate gains and substantially to maintain memberships, even though their rapid growth of membership around Earth Day leveled visibly. A few such groups (e.g., Zero Population Growth) experienced dramatic drops in chapters and in membership and then, apparently, achieved a somewhat fragile stability at a much more modest level."

An example of these changes can be seen in comparing the patterns of growth represented by the Wilderness Society and the Audubon Society. The Wilderness Society is a single issue, purist ideological group without major land holdings. The Audubon Society is a multi-issue organization with a middle of the road or "balanced" ideology group with substantial land holdings. The Wilderness Society is experiencing a stabilization and decline in membership growth at around 60,000 while the Audubon Society continues to expand its position in the middle of the outdoor recreation-environmental protection spectrum far beyond the 400,000 mark.

Our analysis of trends in subscriptions to journals of various outdoor recreation interests indicates there is a fairly rapid peaking of subscriptions within a relatively short time period. Then there is considerable stabilization with some mainline journals continuing while a number tend to die off after the initial flush of the activity. Motorcycle and recreational vehicle journals seemed to have especially high proliferation rates and equally high mortality rates. One suspects these journals follow the natural law of industrial concentration. This is where an innovation is introduced, such as the automobile or snowmobile, whose relatively open and large market encourages a large number of manufacturers; then the initial period of proliferation is followed by high rates of firm mortality, judicious coalitions and saturation of the market until only one or two major manufacturers remain.

There seems an equal trend in which at first a few enthusiasts actively participate in a new sport. At this stage, there is a good deal of esoteric love and high accident rates. Then there is the formation of organizations to ensure access to necessary resources and to police the behavior and image of participants. This then evolves to the stage where organized and later televised competition emerges with the active involvement, guidance and funding of manufacturers. Consequently hot rodders, dirt bikers and snowmobilers gradually find themselves in the position of spectators and persons who are expected to model themselves on the performance of manufactured heroes and heroines. These patterns are not as frequently found in the less mechanized outdoor activities. Partly this is because many of these activities do not as easily lend themselves to spectacle. However, mountain climbing, cross country skiing, sailing and river running suggest a similar pattern.

The mingling of those who have an economic stake in the perpetuation, increase and security of a locale for an outdoor activity with those who are hard core activitists (and consumers) is an association not often found in other commercial transactions of our society. However, the use of technology to make an activity easier and therefore expand its use more widely among the population seems to be a characteristic of all industrial activities. The conversion of participatory activities into spectator activities to increase consumption is well known among those with a financial stake in commercial sport. Yet, in all cases the prosletizing for a particular activity soon reaches a point of saturation and stability. There are only so many consumers for high technology backpacks, exotic sports cars, fast dirt bikes and fans of hockey or indoor soccer. Consequently, outdoor organizations and activities tend to assume a pyramidal structure as discussed by Walton. Some organizations emerge as the dominant ones in a particular activity and some activities assume dominance over others.

Bevins and Wilcox's (1979) comparison of camping trends and sales trends in tents and RV shipments emphasizes the new domination of the RV. Their trend data (Figure 2) further illustrate the "hierarchy" of certain outdoor activities over others (see Figure 3 and Table 8). It is essential to note the basic stability in the ranking of preferred activities and the generally low appeal of most outdoor activities to most Americans.

Table 8.--Recreation days per participant for activities included in three nationwide recreation surveys: 1960, 1965, and 1972.

Activity	1960-61 ORRRC Days/participant	Rank	1965 BOR Days/participant	Rank	1972 BOR Days/participant	Rank
	-summer unless noted--		------full year-------		--------summer--------	
Bicycling	19.4	1	20.6	1	12.9	1
Playing outdoor sports or games	12.3	3	17.3	2	9.8	2
Walking for pleasure	13.1 (Winter)	2	15.2	4	9.1	3
Swimming	11.5	4	14.3	5	9.1	3
Bird watching			15.9	3	6.7	9
Driving for pleasure	12.7	5	12.1	6	7.5	7
Fishing	6.8	7	7.6	7	7.3	8
Camping	5.7	8	6.9	8	8.9	5
Horseback riding	7.5	6	6.8	9	6.1	11
Sightseeing	5.2	12	6.6	10	6.1	11
Water skiing	5.1	14	6.6	10	6.5	10
Other boating	5.5	10	6.5	12	5.5	14
Nature walks	5.2 (Fall)	12	5.9	14	5.6	13
Sailing	3.0	17	6.2	13	8.4	6
Attending outdoor sports events	5.5 (Fall)	10	5.8	15	5.1	17
Hunting	5.6 (Fall)	9			4.3	18
Hiking	4.4	15	5.1	17	5.3	16
Picnicking	4.0	16	5.6	16	5.5	14
Canoeing	3.0	17	4.5	18	4.1	19
Attending outdoor concerts, plays, etc.	2.4	19	3.0	19	2.6	20

Note: Rank comparison is more meaningful than actual days because length of seasons used differ among surveys.

Figure 2.--Camping participation related to tent sales and recreation vehicle shipments (Bevins and Wilcox. 1979).

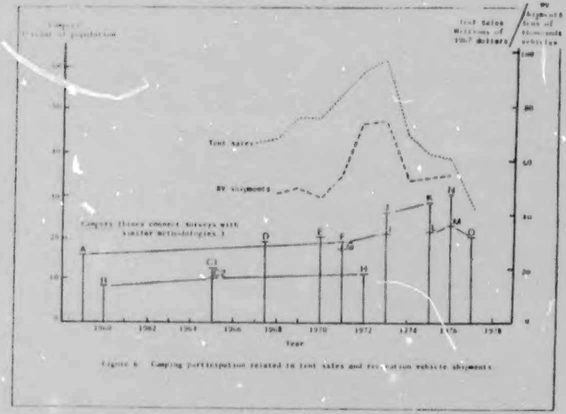
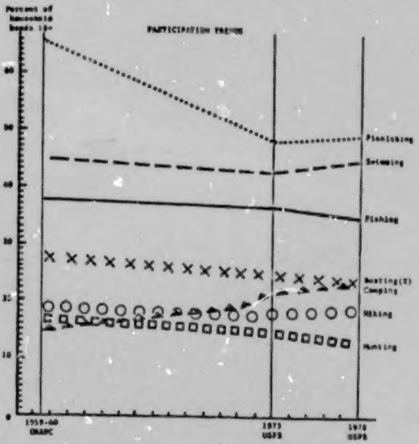


Figure 3.--Participation rates of household heads in seven popular activities, 1959-60; 1973; and 1978. (Bevins and Wilcox, 1979).



The stable ranking of activities suggests something of the potential for trends in outdoor recreation organization memberships and lobbying. An organization that can combine several activity interests and link these to economic forces is more likely to grow than a single interest, non-economic organization. And of the overall potential for outdoor recreation membership growth is stabilizing and/or being challenged by other interests then lobbying will be increased. Our remaining time will be spent looking at those social forces influencing membership and lobbying trends.

THE FUTURE

It would seem that two forces which would affect potential growth of outdoor organizations are population growth and disposable income. Figure 4 illustrates that population growth is consistently declining. If present patterns of reproductive behavior continue it would seem that there will be fewer and fewer persons available as potential members for outdoor activities and organizations. This seems especially so when we consider Figure 5 on personal consumption expenditure since 1946. The high economic growth of the post second world war period has permitted a gradual rise in recreation expenditures. However, the post OPEC period suggests that higher and higher proportions of disposable income will go for food, housing and transportation with recreation, education and personal business showing sharp declines. So the combination of declining population and disposable income would suggest a marked slowdown in interest and financial ability to participate.

Figure 4.--Rate of change in population and labor force, by sex: 1950-55 to 1985-90.

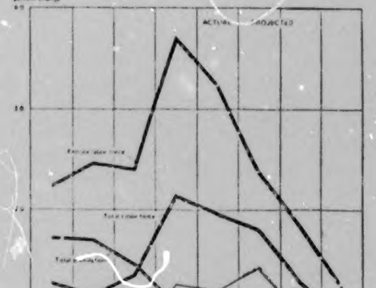
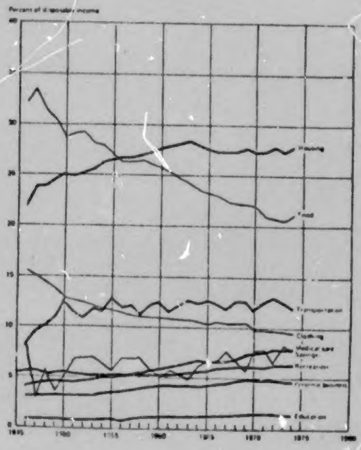


Figure 5.--Personal consumption expenditures, by type of product and service: 1946 - 1974



This projection undoubtably represents certain basic trends. However, people do not live by bread alone. Indeed, a substantial economic depression increases non-work time and increases the demand upon open spaces and parks. Further, participation in voluntary organizations is not randomly distributed over the population. As John Robinson's study of time budgets illustrates, the most active volunteers tend to be better educated, younger and female. As Table 9 indicates, the trend from 1965-1975 is for increased time to be spent upon volunteer time.

This is particularly interesting when we consider Robert Mitchell's (1979) post Proposition 13 national survey that found strong continuing support by all classes and social groups for environmental protection. Yet, of most interest are the factors associated with membership in environmental organizations. Even though only eight percent of the population were members, white male, post graduates earning over $30,000 per year, with independent party affiliation and liberal ideology were characteristics overrepresented among the joiners. In short, the new professional classes are significant factors in carrying the environmental quality banner which has the strong support of most Americans. As Table 11 on trends in occupations suggests, this is precisely the occupational group with the most consistent pattern of growth. So the future trends are mixed but suggest considerable potential for the growth of some mainline outdoor recreation organizations.

One feels that the strong support for environmental protection by the public at large reflects the still amorphous nature of the issue. Public health is certain to be at the front of

Table 9.--Average hours per week spent in major types of activity by selected urban population groups, by race and by age--1965 and 1975.

Activity	White	Black and other races	18-25 years	26-35 years	36-45 years	46-55 years	56-65 years
	----race------		----------	----------	age	----------	----------
1965 URBAN SAMPLE							
Size of sample (number)	1,030	103	200	321	306	252	156
Total time (hours)	168	168	168	168	168	168	168
Sleep	53.4	50.9	54.3	52.5	53.1	53.9	53.6
Work for pay	31.9	36.6	32.6	29.2	33.1	33.5	35.9
Family care	26.0	23.6	21.2	30.4	25.4	24.9	20.4
Personal care	21.8	19.9	20.9	20.3	22.5	22.4	20.9
Leisure time (total)	34.9	36.9	39.1	35.6	33.8	33.4	37.1
Organizations	2.8	3.0	4.8	3.0	3.0	2.0	2.9
Media	14.8	15.7	13.9	14.6	14.5	15.3	17.3
Social life	9.3	9.1	11.3	10.3	8.4	8.6	8.1
Recreation	1.1	.6	.8	1.2	.8	.6	1.2
Other leisure	6.9	8.4	8.3	6.5	7.1	6.9	7.6
1975 URBAN SAMPLE							
Size of sample (number)	680	77	149	234	150	141	111
Total time (hours)	168	168	168	168	168	168	168
Sleep	54.5	54.8	55.4	53.9	54.7	55.4	56.0
Work for pay	30.0	30.0	27.0	33.4	34.4	31.0	20.4
Family care	21.1	17.6	15.3	21.6	20.4	23.2	23.2
Personal care	22.1	21.0	20.3	20.8	21.1	23.1	26.6
Leisure time (total)	40.3	44.6	50.0	38.4	37.3	35.2	41.8
Organizations	4.4	4.9	8.4	4.2	3.3	3.1	3.2
Media	18.7	19.6	18.5	17.2	18.3	18.8	22.6
Social life	8.2	9.8	10.7	8.7	7.8	5.4	6.2
Recreation	1.5	.4	2.6	1.3	1.0	1.1	1.3
Other leisure	7.5	9.9	9.8	7.0	6.9	6.6	8.5

such concern, so air and water pollution, traffic jams, urban slums, industrial safety and carcinogens in nearly everything are likely to be more curcial motives than the protection of a hunting area or funds to maintain a declining park system. Still the issues of parks, playgrounds and open space can feed from the general concern for creating a quality of life that matches our touted wealth.

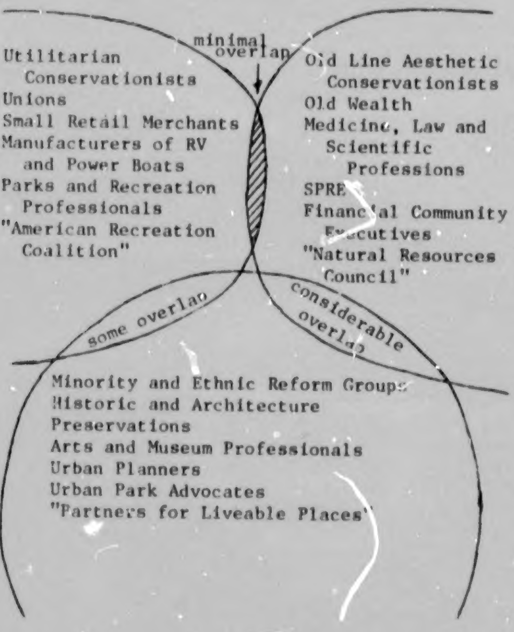
In sum, the potential threats from without and within the recreation movement seem to be leading to a series of social circles and shifting coalitions or "interorganizational connections" as Perrucci and Pilisuk (1970) would call them. Many of the larger preservation organizations have banded together in a Natural Resources Council of America to present a united front. Another coalition of arts, urban open space and historic preservation called Partners for Liveable Places has been formed. These two groups are likely to confront a group of some fifty organizations more dedicated to active recreation, who have formed the American Recreation Coalition. Finally, there is the rapid growth in trained recreation specialists loosely joined in the National Recreation and Parks Association who distribute themselves among the three major circles (see Figure 6).

These three social circles have implicitly different lobbying agendas. The Natural Resources Council is basically opposed to development and is restrictive in regard to high quality air and water standards and use of wildlands. The "Partners" group strongly favors certain kinds of urban redevelopment. The American Recreation Coalition has a strong industrial underpinning and is likely to stress the need

Table 10.--Trends in U.S. occupations--percent of labor force in various categories: 1900 - 1975

Categories	1975	1970	1960	1950	1940	1930	1920	1910	1900
Number of workers (in thousands)	84783	78627	65778	56225	51742	48686	42206	37291	29030
Professional & technical	15.0	14.2	11.4	8.7	7.5	6.8	5.4	4.7	4.3
Managers, officials, & proprietors	10.5	10.5	10.7	8.9	7.3	7.4	6.6	6.6	5.8
Clerical	17.8	17.4	14.8	12.3	9.6	8.9	8.0	5.3	3.0
Sales workers	6.4	6.2	6.4	7.0	6.6	6.3	4.9	4.7	4.5
Craftsmen & foremen	12.9	12.9	13.0	13.8	11.9	12.8	13.0	11.5	10.5
Operatives	15.2	17.7	18.2	19.8	18.4	15.8	15.6	14.6	12.8
Non farm labor	4.9	4.7	5.4	6.1	9.4	10.9	11.6	12.0	12.5
Private household	1.4	2.0	3.0	2.5	4.7	4.1	3.3	5.0	5.4
Service workers	12.4	10.4	9.2	7.6	7.1	5.6	4.5	4.6	3.6
Farmers & farm managers	1.9	2.2	4.2	7.7	10.4	12.3	15.3	16.5	19.9
Farm laborers	1.6	1.7	3.3	4.3	7.0	8.8	11.7	14.4	17.7
Occupations not reported	---	---	---	1.3	---	---	---	---	---

Figure 6.--A representation of likely social circles in environmental and outdoor recreation movements


minimal overlap
Utilitarian Conservationists
Unions
Small Retail Merchants
Manufacturers of RV and Power Boats
Parks and Recreation Professionals
"American Recreation Coalition"
Old Line Aesthetic Conservationists
Old Wealth
Medicine, Law and Scientific Professions
SPRE
Financial Community Executives
"Natural Resources Council"
some overlap
considerable overlap
Minority and Ethnic Reform Groups
Historic and Architecture Preservations
Arts and Museum Professionals
Urban Planners
Urban Park Advocates
"Partners for Liveable Places"

for more active facilities and more liberal access by the public to open space. The NRPA, except for its sub-group, Society of Recreation Educators, is more likely to favor active over passive uses of the outdoors. The next decade should see considerable shifting of ground and a good deal of in-fighting between these various groups. We may be reasonably confident that none of these groups will accept the tourism umbrella organization--Discover America Travel Organizations, Inc.--as their political shelter. Indeed, some of these groups assume they are on a religious pilgrimage rather than simply enjoying the companionship and scenery. We may be equally confident that the Defense Department will forget more money than these groups will gain in total public investment for their favorite programs.

CONCLUSION

This paper has attempted to travel over a vast and dangerous terrain with only the most diminutive of factual cairns to guide us. We began by suggesting that the emergence of the outdoor recreation movement reflects the final transition from the age of production to the age of consumption. Unfortunately for the long run survival of our society, such a transition may have come at just the wrong time. Nevertheless, work is unlikely ever again to assume the kind of central life purpose that it had for our puritan ancestors.

We suggested that the conservation struggle is no longer primarily between commodity exploitation and "higher values" as it is a struggle between different conceptions of the best and highest recreational utility. We then considered how all of this might fit into the larger trends of American political structure. We suggested that hierarchies of recreational issues and organizations were emerging. We concluded that population declines and rising inflation were not likely to have as marked an influence upon membership patterns as were the struggles between the emerging recreation coalitions.

Be that as it may, for the first time outdoor recreation is being self conscious about its political realities. And this can only promise an ever clearer consideration and measurement of those self-evident truths about the full human value of outdoor recreation resources. All confrontations with reality are painful. Yet only through them do we gain hope for an improved human condition.

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SKIING TRENDS

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Abstract.--A brief historical overview of skiing is presented, followed by a review of factors such as energy, population trends, income, sex, occupation and attitudes which affect the future of skiing. A. C. Neilson's Sports Participation Surveys show that skiing is the second fastest growing sport in the country. Skiing Magazine's study indicates there are approximately 14 million active skiers in the United States. The U.S. Forest Service's nation-wide study of the skier market indicates there are another 13 million potential skiers.

Demand is increasing at a much faster rate than supply is. Regionally the West is experiencing an imbalance of demand exceeding supply, while the East and Midwest are approaching equilibrium. Without an increase in supply, skiing may suffer a decrease in popularity. The paper concludes with a list of future trends.

INTRODUCTION

Historical Overview[1]

Recreational skiing has ancient roots, with skiing being traced back to prehistoric times where man used primitive skis and sleds to cover vast snow covered areas in the Scandinavian countries. Archeological findings have placed skis in Sweden and dated them by pollen analysis at 2,000 B.C. Skiing provided a means of travel between isolated communities, provided a technique for the hunter which aided his survival in snow-bound regions, and was also used in conducting war in Norway as early as 1184 A.D. As could be expected, use of skis led to racing, and Norwegian military contests involving downhill racing were held during the late 18th Century.

The Norwegians developed steering and stopping techniques, which elevated Alpine skiing and ski jumping in Scandinavia to the high status it holds today. Skiing as a sport followed the migration of Norwegian skiers around the world. Hannes Schneider from the Arlberg region of Austria developed techniques emphasizing speed, edging and the shifting of weight from ski to ski, which made skiing easier and more attractive for the average alpine visitor. Sir Henry Lunn, an Englishman, is credited with starting the promotion of winter tourism by inviting some influential British friends to France for a winter holiday in 1898.

Skiing was further enhanced by the military use of skis and by the first Winter Olympics at Chamonix, France, in 1924. Great improvements were made in ski equipment and in the development of transportation devices to carry a skier or pull a skier uphill--rope tows, T-bars, trams and chairs. The first chair lift in the U.S. was developed in 1938 at Sun Valley and its current popularity is well-known, as it dominates uphill transportation. Ski trains became popular in Winter Park, one of the first ski areas in Colorado, when the area was reached by skiers who came through the Continental Divide via the Moffat Tunnel.

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[1] Smith, Kenard E. Location Analysis of High-Volume Skiing in Western United States, Xerox University Microfilms, Ann Arbor, Michigan 48106, 1975, pp. 1-55.

As interest picked up in skiing, early ski resorts developed in response to the desire to ski, particularly at areas near large urban markets. A few ski resorts such as Sun Valley, were developed far from urban markets, offering complete lodging, dining and entertainment at the ski slopes--very typical of today's destination ski resorts. Eastern ski areas thrived on skiing's new popularity and efficient train service. Consequently, despite the depression, skiing grew from participation by a small hardcore group--ski jumpers and college club students--to a $200 million enterprise prior to World War II.

The post-World War II impact was dramatic. The skiing industry capitalized on new equipment developed, ranging from snow vehicles and ski clothing to improved boots and skis. The members of the Tenth Mountain Division returned to the mountains where they trained to virtually build a major industry. Approximately 90 ski areas, primarily with rope tow installations, were in existence in 1947. During the 1950s, the number of ski areas grew to over 200, and this rapid growth has continued with skiing gaining mass appeal. It is an "in" thing to do, and leading ski resorts thrive. Skiing has become not only a form of recreation, but a big business. Resorts, ski clothing, ski equipment, transportation, and real estate have all become part of making skiing a major winter recreation industry.

During the 1960s and 1970s, skiing has reached high volume proportions. The 1960 Winter Olympic games held at Squaw Valley, California, received live television coverage which greatly enhanced the U.S. public's interest in skiing. Today we find that ski areas in the United States and Canada are catalogued in the White Book of Ski Areas, published by Interski Services, P.O. Box 3635, Georgetown Station, Washington, D.C. 20007. This book lists approximately 925 ski areas with 725 being in the United States and 200 in Canada. They acknowledge that there are additional areas of a small nature, primarily rope tow, which are not listed and which do not operate consistently from year to year.

Today, in 1980 we find that skiing closed out the 1970s with a rush. Recent studies put the number of U.S. residents skiing at over 14 million. In 1976, retail sales of snow and skiing equipment totaled over $404 million. The 1977-78 ski season was the best in history all across the continent. The industry is estimated to be growing at approximately 7.5-9 percent per year. In 1978-79, Colorado led the nation in lift tickets issued, with 7,215,316. Participation in skiing has been growing at a rapid rate. The A. C. Neilson Company's Sports Participation Survey conducted in 1979 shows an overall increase of approximately 40 percent from the numbers in the 1976 study and the 1976 study was up by approximately the same amount over the 1973 study.

FACTORS AFFECTING THE FUTURE OF SKIING

There are certain basic factors that affect the market for skiing. Since these are general factors, they also affect the market for other outdoor recreation activity to an almost equal degree. Since our task is to look at trends in skiing, we will focus on these factors from a skiing perspective. Readers should recognize they may apply equally as well to other forms of outdoor recreation.

Like any other product, skiing requires people with income and a willingness to spend in order to generate successful markets. Some of the major factors that affect the market for skiing are population trends, income, sex, education, occupation, time, attitudes, fashion, custom, habit, tradition, life styles, and energy. This brief list is illustrative of major factors affecting tourism that the ski area manager must be concerned with.

Population Trends

It takes people to create a skiing market, and as we all know the population in the United States has been increasing rapidly. Although the growth rate has slowed considerably in the last decade, the numbers are still increasing and will continue to do so. As of July 1, 1975, the U.S. population was estimated to be approximately 214 million. In 1980 it is expected to be 222 million; in 1985, 233 million; in 1992, 244 million. These population numbers indicate that the trend is favorable for the future of skiing. More important to the future of skiing than just sheer population numbers is the mix or profile of ages.

Age

The age factor is probably of greater interest to ski area managers than any other population figure. Here we have both some plusses and minuses.

Teenage Segment. The teenaged population is now declining after record growth in the 1960s. Even so, this group bears close examination. This is a group from where future skiers come. While the total population in the U.S. is projected to grow about 10 percent during the next ten years, there will be something like a 7 percent decrease in the number of teenagers. In spite of this decrease, they will still number around 25 million in 1990, versus approximately 29 million today.

The Young Adult Segment. The number of people 20-34 years old is expected to increase from about 57 million in 1980 to 62 million by 1985. The 20-34 year olds who now comprise the largest segment of the adult population will still be the largest group by 1985 and will continue to dominate up to 1990. These figures make the future of skiing very bright indeed, because this is the heart of the skiing market. This is the group that is important for ski marketers to get on the slopes, as evidence shows that they will continue to ski until they are approximately 50 years of age.

The 35-49 Segment. The 35-49 year old group will increase over 30 percent to approximately 46 million in the United States by 1987. This is another very important group for the future of skiing. This group tends to heavily populate destination ski resorts and travel by air.

Senior Citizen Segment. Another major population category that deserves to be watched is the Senior Citizen group. The number of people over 65 will increase about 20 percent to 27 million in the 1980s. This group tends to be the least mobile of our population, and tends not to ski. With the increasing numbers in this segment, perhaps it deserves more attention than it has received in the past, as the over-60 age group at ski areas show relatively steady percentages. Ski area operators need to examine how these numbers can be increased.

Income

Buying power is another critical factor affecting the demand for skiing. The skier typically tends to be high scale, earning above the average income of the U.S. population. The 1977 National Travel Survey shows a direct relationship between family income and travel. Families with incomes over $25,000 per year were heavy travelers, taking almost five times as many trips as those with incomes of less than $5,000. A similar situation exists in skiing, where income correlates closely with participation in the activity.

Sex

Throughout history, skiing has been dominated by the male sex and it continues to be. However, the trend that should be observed is that more and more women are skiing, and the future will see larger and larger numbers of women on the slopes. Almost 53 percent of the adult population are women, and their longevity continues to increase. The women's movement has dramatically changed the role of women. During the past five years, the number of single adult women rose approximately 40 percent to over 8 million; 71 percent are 20-34 years old; half of them have incomes of $10,000 or more; almost half have gone to college; and almost 70 percent are working. For many women, the home has ceased to be a full-time occupation. Women have earned increasing responsibilities in the traditional work of men, leading to new levels of female education and economic and social independence. Consequently, women represent a tremendous potential for skiing.

Education

Education has always been a factor which stimulated travel. It affects skiing the same way with skiers being a very highly educated group. Trends in education show greater and greater proportions of the adult population to complete additional years of education. The Census Bureau projects that by 1990, 74 percent of people 25 and over will have four years of high school, compared to 65 percent in 1977. In 1977, 29 percent of the adult population had completed one or more years of college, while at least 33 percent are expected to have done so by 1990.

Occupation

Occupation is a factor that is closely related to income and education. There are also certain life styles associated with occupations, and this has an impact on whether individuals are likely to ski or not. Studies have shown that the occupational classification of the household head producing the greatest number of ski trips were in the professional, technical and managerial areas. The 1977 National Travel Survey shows the same occupational classifications produced the greatest number of person trips, as well. During 1970 to 1980 there was a 40 percent increase in combined numbers of professional, technical and managerial workers--twice the percentage increase for the labor force as a whole. This obviously speaks well for the future of skiing.

However, there are more workers in other occupational categories. Income is growing more quickly among lower socioeconomic strata. This group typically has not skied. However, there is no question that today they are moving into the same income classes that skiers come from. Market analysis shows that consumers no longer fit neatly into categories of income, age, sex, and occupation. Plumbers, for example, may now have the income of university professors, but their spending habits are quite different. The potential is there, however, for this market to emerge as active skiers.

Attitudes

Attitudes toward leisure and recreation have changed over the years. We have moved from a Protestant work ethic to a leisure ethic. The length of the work day in the United States has been compressed from about 12 hours to 8; the number of days worked per week has declined from 7 to 5 or even fewer; and the population's attitude toward travel, leisure and recreation has shifted from being a luxury to a necessity. It seems quite clear that future generations will view leisure quite differently than those of the past. They will view it as a right, as one of the most meaningful aspects of their lives, and this attitude change will greatly enhance skiing.

Time

Another factor affecting skiing is free time. Not only does it take money to ski, but it also takes time. The amount of free time or leisure time available to the average person in the U.S. will continue to increase, which will assist in the further growth of skiing. The practice of granting paid vacations and holidays will continue to grow, and it will be these blocks of free time that will assist the growth of the ski industry. The Uniform Monday Holidays Act provided additional blocks of time, and it is interesting to note that for most ski areas, the three-day weekend in February including President's day tends to be the peak ski day of the year. Christmas, another typical vacation period when the family is required to stay home because of school, is another major peak time.

Fashion

Fashion is another factor affecting skiing, as fashion is universal in U.S. marketing today. It applies not only to women's clothing, but virtually every product and service you can mention, including recreation and transportation. Skiing is a fashionable activity in today's society. Ski clothing has a definite fashion element. It appears that for the near term, skiing will continue to be a very fashionable and popular activity.

Energy

Energy is a factor we have not had to deal with in skiing until 1974. It is one of those irregular factors that can come into the picture and dramatically affect all the usual factors, such as population, buying power, etc. There is no question but what today one would be remiss in not talking about the energy situation as a major factor affecting skiing and other forms of outdoor recreation. The majority of skiers still arrive at the ski area by automobile. In the study, The U.S. Skiing Market: A Nation-Wide Study of Skier Behavior Attitudes and Motivations Among Alpine and Nordic Skiers, conducted by Opinion Research Corporation for Skiing Magazine in 1978, the personal car is shown as the most popular means of transportation used by eight out of ten current skiers. Each of the other means of transportation--bus, rental car and train--are used by less than four percent of skiers. Because of this, the fear of not being able to buy gasoline will be a major travel deterrent. Consequently, long-term trends that may result from energy problems are: (1) an increase in package tours and increased tour groups which are energy efficient and provide transportation security for the skier; (2) an increase in smaller, less comfortable, more energy-efficient automobiles; (3) an increase in travel to ski areas closer to home; (4) less frequent trips, but an increased length of stay.

An impact which may have considerable importance to the sport of skiing is the result of high heating costs in northern states changing the traditional school year pattern. There has been talk of having vacation time during the coldest winter months to save energy and to have four day school weeks during the winter with the times made up during milder weather. If these actions take place, it would provide additional time for ski vacations and could be a real boon for skiing. When it comes to energy priorities, it is believed that consumers will give up other activities before relinquishing their vacation and recreation activities.

Changing Life Styles

Income does not ski, occupation does not ski, education does not ski--people ski. The decision to ski or not to ski involves an intricate set of wants, needs, desires and expectations. These belong to people who are constantly changing. It is clear that skiing remains a major option for affluent, educated people to choose to occupy their free time, but skiing is only one of many options available. Today more people are concerned with self-fulfillment, trying out new life styles, and searching out new pleasures. In this environment, skiing has become a competitor, bidding against other leisure time activities for the consumer's attention and a share of his time and dollars. Today there is a great merging of recreational life styles, with little distinction between social classes, as millions of people become more financially and physically mobile. While income is still a good indicator for marketers, an analysis of income is no longer a sure guide to the patterns of recreational usage.

The ski area planner must examine and keep up with changing life styles. The fact that young adults are a growing force in our economy, with their new values and attitudes, must be analyzed. Take marriage, for example. The attitude of young people is quite different from today's 35-49 year old age group when they were young. Today's young people are getting married later, if they get married at all, and this is creating growing numbers of single people. In the past five years, the singles market has grown from 10 million adults under the age of 35, to 15 million. This enormous singles market is continuing to grow. There is also the divorced segment of the singles market, approximately 11 million people in the U.S. are divorced or separated. Recent figures indicated that there was one divorce for every two marriages. The singles life style appears to be very compatible with outdoor recreation activities such as skiing.

Conclusion

The factors that have been sampled point out that in the skiing market place it is necessary to recognize that people will change in coming decades. Their customs, values and life styles will go through the usual metamorphosis of time. If the ski area planner is to forecast trends with a profitable foresight, he must be a student of the factors affecting the skiing scene.

SKIING TREND INFORMATION

It's time to move from the general to the specific and talk directly about skiing and what has been going on in the sport of skiing. When we talk about skiing, we typically think of alpine or downhill skiing, but today with the rapid growth of cross-country skiing, it needs to be included in any analysis of the sport.

Just as skiing has come a long way from its small beginnings, so has ski research and information on the industry. For years, skiing was plagued by the lack of good information, but today we are fortunate to have a number of studies on the industry which provide valuable insights into the skier, the market place, actives, inactives, nonskiers, and potential skiers.

One of the benchmarks on the sport of skiing is provided by the A. C. Neilson Company with their 1979 Neilson Sports Participation Survey. This survey is the fourth in a series of three year measurements designed to monitor the participation of the public in major sports activities. Neilson conducted their first nation-wide sports participation study in 1970, covering 13 sports categories. In 1973 they launched their second survey, making it much more comprehensive measuring 25 sports and conducting the survey via telephone. In 1976, the third survey was conducted with the number of sports covered increasing to 27, and the project was patterned after the one in 1973 to enable trends in sports participation behavior to be traced. The 1979 survey follows the same data collection techniques that were designed in the 1973 and 1976 studies, and it covers 30 sports categories. The interviewing was performed during the March-April period, dovetailing the time of the data collection in the 1976 study. This had the advantage of holding seasonal variables to a minimum and being virtually the ideal time to collect skiing data. Consequently, Neilson's data provides an important benchmark from which to explore skiing.

In any study, it is important to learn what definitions are used, and the A. C. Neilson people note that a participant/player for the purposes of their study is defined as an individual who participates in an activity or plays a sport "from time to time" during the past year. Neilson's data indicates that snow skiing is a very popular sport increasing participation at a very rapid rate. There was approximately a 40 percent increase in participation in skiing in 1979 over 1976, on top of an approximately 40 percent increase between 1973 and 1976. This has brought current participation in this sport of snow skiing to a level of 6.8 percent among individuals, which projects to approximately 14.6 million skiers. This figure is very close to the figures published by Skiing magazine in their U.S. Skiing Market study and by the Forest Service in their Nationwide Skier survey. Slight differences in totals exist because different age groups were included, but when these differences are accounted for the study results are remarkably similar.

More important than the numbers participating is the makeup of those numbers. For example, a beer manufacturer wishes to know who his light, medium and heavy users are. The same should be true in skiing. You want to attract the heavy skiers or serious skiers to your resort. About 20 percent of the skiers account for about 60 percent of the participation. Light skiers skiing 5 days a year or less amount to about 45 percent of the participants and account for about one-eighth of the participation. Heavy skiers ski twenty days or more per year.

Important benchmarks to remember are that of the approximately 76 million households in the United States, 12.4 percent have one or more family members who ski. This is up from 1976 when the incidence was 8.6 percent. On the average, each skiing household contains 1.6 members who ski.

Highlights show that the average downhill snow skier has been skiing for over six years, and cross-country participants have been skiing for about 3.75 years. In 1976 downhill skiers averaged slightly over six years of activity in skiing. The number of miles traveled in order to reach snow ranged from less than one mile, to 1,000 miles or more, with the average one-way trip representing a distance of slightly over 200 miles. This compares to a similar average of nearly 200 miles in 1976. Cross-country skiers do not travel quite as far--an average of 83 miles. The automobile continues to be the primary mode of transportation used to travel to the downhill snow skiing area, at 87 percent, while 73 percent of the cross-country skiers use the automobile. Each downhill trip lasts an average of nearly three days, while cross-country skiers average about 1.7 days per ski trip.

Fourteen percent of the downhill snow skiers and 24 percent of the cross-country skiers stated that they purchased skis during the past 12 months. The average price for a pair of downhill skis was $170, while the average price for a pair of cross-country skis was $90.

Another benchmark study was the previously mentioned U.S. Skiing Market Survey conducted for Skiing Magazine by Opinion Research Corporation. This study found that almost 10 million adults do some snow skiing each year, either Alpine or cross-country or both. In addition, there are over four million teenaged snow skiers, for an overall total of almost 14 million people aged 12 or over who skied during the 1976-77 season. They found that 58 percent of all adult skiers are male, and 42 percent are female. Skiers who ski alpine exclusively account for 72 percent of all skiers, while 11 percent engaged in cross-country only, and the remaining 17 percent skied both alpine and cross-country.

Skiing enthusiasts are demographically different from the total U.S. population, as has been shown in many other studies. For example, their study showed that males account for 59 percent of all Alpine skiers, 53 percent of all cross-country skiers, but only 48 percent of total U.S. adult population. Approximately one-half of all skiing enthusiasts are single, compared to only one in five U.S. adults who are single. Approximately seven out of ten adult skiers are under 30, but only three out of 10 adults in the U.S. population are under 30. The skier has a higher level of education; approximately 20 percent of alpine skiers and 30 percent of cross-country skiers have achieved post-graduate levels of education, while less than 10 percent of adults in the total U.S. population have done any post-graduate work. Skiers also have high income levels compared to the U.S. population, with 32 percent of alpine skiers and 26 percent of cross-country skiers living in households with $25,000 and over annual income, while only 16 percent of the total population live in such households. Employment dovetails income, and skiers tend to hold more prestigious occupations; approximately 60 percent of skiers are in a professional or managerial capacity while less than 30 percent of employed adults in the U.S. are in professional/managerial occupations.

This survey also covered motivations for skiing, which it grouped into three major categories: (1) those related to health/esthetic factors; (2) activity/sports related factors; and (3) personal/social factors. The three types of factors were about equally important to Alpine skiers while the health/esthetic factor was by far the most important to cross-country skiers. Skiing is a social activity, and the Skiing magazine survey points out the importance of this, revealing that six out of ten skiers were introduced to skiing by friends and almost four out of ten by family members.

It is common in ski surveys to ask skiers to classify themselves according to their level of experience or ability. This is always an interesting exercise and one wonders how the rating would compare with an instructor or a ski patrolman's. In any event, in the Skiing magazine survey, 25 percent of the Alpine skiers classified themselves as beginners, 25 percent as intermediates, and 50 percent as advanced or expert.

Well over 50 percent of the Alpine skiers took overnight skiing trips during the 1976-77 season and averaged close to eight skiing trips during the 1976-77 season, while cross-country skiers averaged over nine trips. Alpine skiers spent an average of 11 days, and cross-country skiers approximately 13 days, on skiing trips. As mentioned previously, the personal car is the most common means of transportation to the ski area, being utilized in 82 percent of the cases.

The three leading states for Alpine skiers were Vermont, New York and Colorado, while the three leading states for cross-country skiers were Vermont, New York and New Hampshire. There were 6.5 million skiing households with one or more adults during the 1976-77 season. The average expenditure by these households on ski trips was $395, for a total expenditure of approximately $2.6 billion. Transportation and lodging each accounted for 25 percent of the total household expenditures on skiing trips, with fees, lifts and rentals accounting for 29 percent; and food, beverage, amusement, etc., accounting for the balance of 21 percent. Six percent of the skiers feel that the cost of skiing in the past five years has increased less than most things they buy, while 63 percent feel that it has increased as much as most things they buy, and 31 percent feel that it has increased more than most things purchased.

The Skiing Magazine survey also included information on past skiers. They estimated that there were 7 million past skiers--adults who skied during the four-year period of 1972 to 1976 but did not ski during the 1976-77 season. Comparing past skiers to current skiers, both differences and similarities showed up. The main differences were in sex, marital status and age, with past skiers more likely to be female (48 versus 42 percent); married (58 versus 42 percent); and over age 30 (37 versus 29 percent). There were no noticeable differences in education, income and employment. The past skier had been active in the market for approximately six years, and about half of them were at the intermediate or higher skiing level. Past skiers most often cited expense, 43 percent, and time, 36 percent, as their reasons for not having skied last season. Close to one-third of the past skiers reported not having skied because ski conditions were not good enough in the 1976-77 season. Fifty-five percent of the past skiers planned to resume their skiing during the 1977-78 season.

A final area explored was leisure time activities. This showed that the skier is a physically active person who engaged in numerous leisure time activities. The most popular other activity was swimming, followed by bicycling and tennis. In comparing the segments of the skiing market, the serious alpine, other alpine and cross-country skiers, all of them favor the same top five leisure time activities: swimming, tennis, bicycling, camping and fishing.

Another benchmark study is the Growth Potential of the Skier Market by the U.S. Forest Service, a nation-wide study of the skier market conducted cooperatively in 1978 by the Northeastern Forest Experiment Station, U.S. Forest Service, under contract with Sno-Engineering Inc. and Opinion Research Corporation. This telephone survey in the spring of 1978 provided data from 2,191 active, potential, and inactive skiers drawn from 7,106 households. This comprehensive examination of skiing includes regional descriptions of the present skiers, former skiers and people who would like to take up skiing in the future. It also provides estimates of the sizes of the various skier market segments, detailed descriptions of public images and attitudes toward skiing, its cost, attractions, facilities and market needs.

This study essentially verified the results of the earlier studies regarding the number of active skiers in the U.S. In 1978, 11.2 million individuals considered themselves downhill skiers and another 1.7 million stated they were cross-country skiers, equalling a total of 12.9 million active skiers 16 years of age and over.

The inactive skiers were broken down into two groups: (1) the permanently inactives, and (2) the temporarily inactives. Among the latter group there were identified 6.4 million downhill skiers and 400,000 cross-country skiers, for a total of 6.9 million. This figure is over one-half as large as the active skier base.

The third major class, the high potential skier, was persons 26 years old or younger who expressed a strong interest in skiing and had friends who skied. A total of 7.3 million persons were identified as having a high probability of trying either downhill or cross-country skiing.

Collectively as many as 27.1 million people could be skiing in the future. This would represent an increase of over 100 percent in the number of currently active skiers. See Table 1.

The mobility of skiers has an important bearing on the future demand. Based upon the U.S.F.S. study, skiers in the East and West tend to ski within their region. Southern and Midwestern skiers visit areas out of their own region. About 80 percent of Southern skiers skied in areas other than the South in 1977-78. Thirty-nine percent visited the West and 32 percent skied in the East. Thirty percent of the Midwestern skiers went out of region to ski during the 1977-78 season, with 22 percent skiing in the West and 8 percent visiting the East. During that season, the West accounted for 43 percent of all vacation skier visits, while the East (32 percent) and Midwest (19 percent) hosted the bulk of the remaining

Table 1.--Regional distribution of major skier market classes and skier days, 1977-78

	West	North Central	South	Northeast
Potential[a]	20%	30%	34%	16%
Active	31	25	14	30
Inactive[b]	31	25	20	24
Skier Days	38	15	3	44

[a] High potential only.

[b] Temporarily inactive only.

visits. The implication is that the West is the most highly used ski region of the country and among potential skiers it is the most frequently mentioned region in which this class of skier would like to ski.

SUPPLY OF SKIING

Introduction

As has been discussed in the previous section, the latent or potential demand as well as the existing demand for skiing as expressed by psychographics is very strong. Such factors as disposable income, competing activities, life style changes and age cohort shifts may act as mitigating forces holding back the realization of only the most optimistic projection for skier growth. However, the most severe constraint on demand will not come from the demand side of the equation at all, but rather from the supply side--the ski facilities being unable to meet the potential increase in skier activity. In assessing the future growth of skiing, capacity and utilization of existing areas must be considered as well as the probability of new areas coming on line with additional capacity.

A ski area is similar to an airplane--once the plane has left the ground, the empty seats can't be sold. Likewise, unused capacity that existed on a Saturday on a ski hill can't be saved for Sunday. Ski area capacity is a function of a multitude of variables: length of season, quality and quantity of snow, proximity to metropolitan areas, mountain terrain, capacity, lift capacity, availability of lodging and weather. All of these elements may cause a downward adjustment of the design capacity of an area.

Ski areas are capital intensive facilities that require long lead times for design, approval and construction. Historical performance of ski areas has not been good enough to promote a strong and active investment pool for new areas. Energy, environmental consciousness, lack of competitively attractive sites and the high cost of capital are all potential deterrents to new area development.

Two questions arise which have a strong bearing upon the future growth of skiing. The first, "Does existing capacity meet the projected demand for skier visits?" Secondly, "Is the demand great enough to encourage developers to take the risks necessary to bring new areas on line?"

Historical Supply

In 1960 there were approximately 240 ski areas in the U.S. By 1968 the number had grown to 600, an increase of 360 areas or 150 percent in eight years. However, in the next ten years between 1968 and 1978 only 100 new areas were built. The 12 percent per annum growth rate which produced an average of 45 new areas per year during the early 1960s leveled off rapidly after 1968 and slowed to 1.5 percent per annum and 10 new areas annually through 1978.

In 1960 38 percent of the areas were in the East, 15 percent in the Midwest and 47 percent in the West. By 1968 with the rapid development of new areas, 52 percent of all areas were in the East, 17 percent in the Midwest, and only 31 percent in the West. Ten years later the percentages remain approximately the same due in part to the decreased activity in area development and also to the greater capacity of the Western areas.

The total number of ski areas expresses the availability of opportunity. If the number of areas is defined geographically, the relationship between ski areas and population centers can be generally related. However, while the number of new areas added over time may express the relative interest in ski development, it does not define the change that occurs in skier capacity. A more precise measurement tool is required if we are to accurately portray the increase in capacity as well as the geographic distribution of that capacity.

The most explicit measurement would come from the execution of a comfortable carrying capacity (CCC) analysis of each new area as well as each expanded area. Unfortunately, the data base does not exist in sufficient detail to undertake this approach, whereby the lift capacity, trail acreage and round trip interval of the skier are evaluated to arrive at an area's CCC.

Vertical Transport Feet per Hour (VTFH)[2] and total number of lifts installed provide a measure of capacity though not as definitive as CCC. Analysis of lift construction figures over the past 20 years provides a benchmark for evaluating the growth in capacity as it relates to the geographic dispersion of lifts. Coupled with VTFH, a fairly accurate picture of the industry's growth can be drawn.

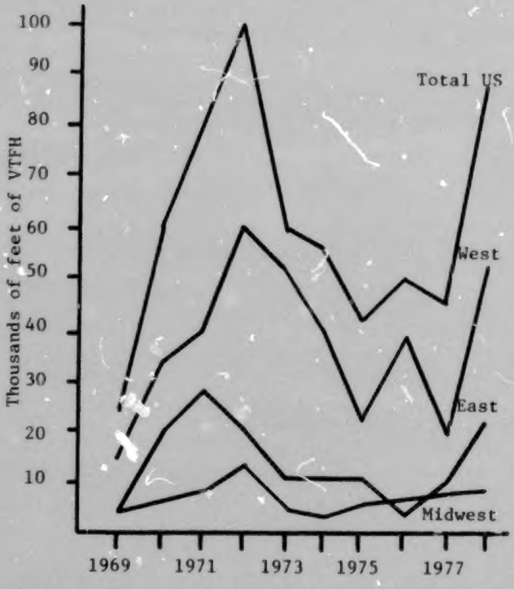
Table 2, Historical Growth of Ski Lifts, depicts the last two decades activity of new ski lift development by region. During the nine-year period from 1960-1968, 1,140 new lifts were built, an average of 143 lifts per year. During the next 10 years, only 995 lifts were added, or 100 per year, a decrease of over 30 percent per year. The initial thrust of development activity (1960-1968) took place in the East where a 10 percent increase in total share of lifts was realized at the expense of the West during the period. By the end of 1978 the West's growth had once again outpaced the East's, as had the Midwest's, and the distribution of lifts was equal East and West, each accounting for 41 percent.

Table 2.--Historical growth of ski lifts.

	1960		1968		1978	
	#	%	#	%	#	%
East	175	36%	740	46%	1,067	41%
Midwest	75	16	250	15	464	18
West	225	49	625	39	1,079	41
Total	475		1,615		2,610	

VTFH is an expression of the quantity of uphill capacity provided by a lift or system of lifts. It therefore is the best estimate of the capacity increases that have occurred over time. From 1969 through 1978, 618,800 VTFH were added to the supply of U.S. skiing. Figure 1, Ten Year Growth Summary of VTFH, demonstrates the rate of growth by region that has occurred over the 10-year period. During this period the West has been adding an average of 12 lifts per year more than the East, and as is shown in the figure, the West added 150 percent more VTF during the period. The average capacity per new lift in the East was 579 VTFH, while in the West it was 983 VTFH per lift.

Figure 1.--Ten year growth summary of VTFH



Source: Various Ski Area Management magazines.

The sharp rises and falls of new VTFH construction by year demonstrates the industry has not added capacity at a steady rate either nationally or regionally. In attempting to correlate added VTFH/year with new areas coming on line, it was revealed that only in a very general way was there a positive relationship between the two. When many new areas were built, the average VTFH per area tended to be low. On the other hand, in years when few areas were added (as was the case in the middle 1970s) the average VTFH per area was much greater. New lifts at existing areas as well as replacement of old lifts diminish the total capacity increase as a result of additional VTFH.

This factor when coupled with the lack of a smooth growth curve VTFH suggests that the supply of skiing has not been empirically responsive to demand. Rather exogenous variables, such as availability of investment capital, expansion potential of existing areas, good snow years, Federal and local governments, approval of new areas and developer interest are factors contributing to the expansion of capacity.

Figure 2, Ski Area Development 1960-1978, depicts the growth and distribution of ski areas in the U.S. Coupled with Figure 3, Ski Lift Inventory 1960-1978, the picture of the historical development and current supply of ski facilities in the U.S. is portrayed.

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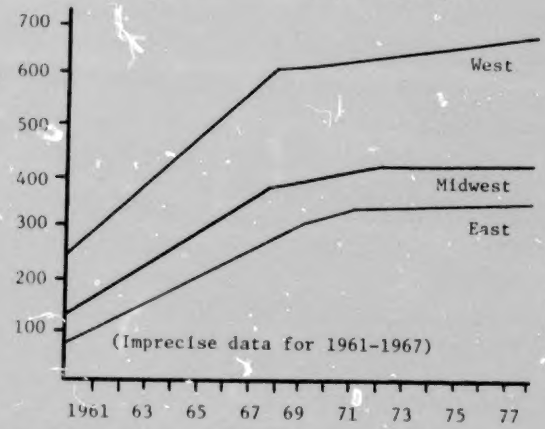
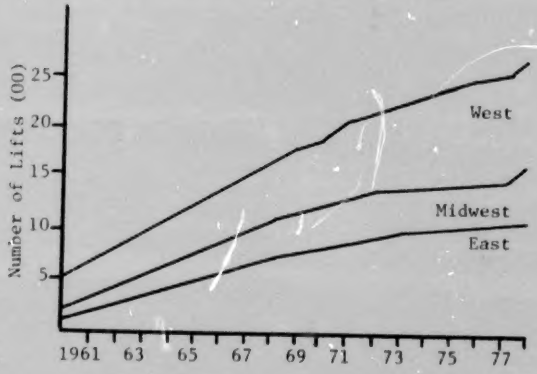
[2] Vertical transport feet per hour--the number of skiers who can be transported 1,000 feet in one hour.

Figure 2.--Ski area development, 1960-1978.



Source: Various Ski Area Management issues, Sno-engineering, and U.S.F.S.

Figure 3.--Ski lift inventory, 1960-1978.



Source: Various Ski Area Management issues, lift manufacturers, and Sno-engineering.

Utilization

Understanding utilization of facilities is paramount to determining the need for additional capacity. It is also extremely difficult to define and accurately measure. The number of variables considered is great and the precision with which some of them can be measured is no better than judgmental. One must consider: total acreage of ski terrain, density per acre of skiers by ability class, ability of lift systems to transport skiers, length of season, length of day, quality of snow, VTFH required by various skill levels of skiers, waiting time in lift lines, number of down days per season and availability of night skiing just to highlight the list.

The Forest Service has developed a scheme for estimating daily and seasonal capacity that is a reasonably good general model useful for analyzing the demand supply relationship. Under the U.S. Forest Service model, uphill capacity, slope capacity, food and beverage capacity and parking lot capacity are evaluated, calculated, and consensus daily capacity estimates derived. To arrive at seasonal capacity the 100 days generally agreed upon as constituting the "high season" (the period from December 16, 1978-March 25, 1979, for example) is multipled by the daily capacity to yield a seasonal capacity estimate. Within the truncated season are two time periods which historically exhibit different use characteristics--weekdays comprising 71 percent of the season and weekends comprising 29 percent of the season.

The truncated season may, in fact, represent the entire season in some years for certain regions of the country such as the East and Midwest. In other parts of the country, primarily the far West, the truncated season may represent only 60 percent of the total season. An evaluation of utilization of areas during the truncated season by weekend and weekday as well as a comparison of the percent of total visits accommodated during the truncated season to the entire season produces an estimate of total utilization. Discussion of this analysis in light of future demand will begin to permit insight into future supply requirements needed to yield a balanced supply-demand equation for downhill skiing.

In Table 3, Analysis of Truncated Season, a representative sample of ski areas operating on U.S. Forest Service land is enumerated along with the operating characteristics of the areas during the truncated season. A selection of those areas and their operating characteristics are included in Table 4, U.S.F.S. Ski Area Operating Characteristics, in order to highlight the key findings of the skier visit data.

In the East and Midwest the 29 percent of the truncated season occurring on weekends produced an average of 50 percent of all skier visits. Those areas with destination skiing tended to have a lesser proportion of their skier visits occurring on weekends. Weekend utilization rates in the East fell in the 55-65 percent range and weekday utilization was in the mid- to high 30 percent

Table 3.--Analysis of truncated season.

Area	Percent of Skier Visits Occurring on Weekends	Percent of Total Skier Visits
California		
Holiday Hill	41%	89%
Sierra Ranch	48	80
Kirkwood	46	75
Mammoth	44	73
Heavenly Valley	38	85
Washington		
Alpental	48	92
Crystal Mountain	56	82
Mt. Baker	74	83
Ski Acres	47	88
Oregon		
Mt. Bachelor	47	76
Mt. Hood	49	91
Multorpor	56	98
New Hampshire		
Mt. Attitash	46	100
Loon	56	98
Waterville	44	89
Wildcat	52	88
Bretton Woods	52	100
Cannon	48	100
Gunstock	47	100
Maine		
Sugarloaf	50	93
Vermont		
Bromley	46	92
Mt. Snow	48	96
Sugarbush	35	98
Mt. Mansfield	35	98
Killington	42	90
Michigan		
Caberfae	48%	95%
Indianhead	50	85
Blackjack	66	93
Minnesota		
Lutsen	54	90
Colorado		
Loveland	50	63
Vail	33	86
Aspen	28	89
Eldora	43	73
Purgatory	41	88
Copper Mountain	39	85
Montana		
Red Lodge	53	76
Big Mountain	38	80
Big Sky	40	85
Wyoming		
Medicine Bow	64	82
Jackson Hole	42	92
New Mexico		
Taos	39	81
Red River	43	93
Sierra Blanca	50	87
Arizona		
Arizona Snow Bowl	44	90
Utah		
Brianhead	50	84
Alta	40	71
Snowbird	36	71
Idaho		
Sun Valley	32	91

Table 4.--U.S.F.S. ski area operating characteristics.

Region/Area	Skier Visits on Weekends	Weekend Utilization	Weekday Utilization	Overall Utilization	Total Visits Truncated Season
East					
Sugarbush, VT	35%	49%	39%	41%	98%
Loon Mountain, NH	56	69	35	45	98
Sugarloaf, MA	50	56	35	45	93
Cannon Mt., NH	48	50	23	31	100
Killington, VT	42	65	39	47	90
Midwest					
Indianhead, MI	50	71	29	42	85
Caberfae, MI	48	66	28	40	95
Lutsen, MN	54	86	30	47	90
West					
Aspen, CO	28	56	61	59	89
Vail, CO	33	102	87	92	86
Snowbird, UT	36	68	53	57	71
Mammoth, CA	44	88	48	60	73
Heavenly Valley, CA	38	71	49	55	85
Mt. Baker, WA	74	246	37	100	83

Source: U.S.F.S. Pricing Study Printout, August 1979.

range. Overall utilization levels were in the mid-40 percent range. Generally, the East is in a position of having excess skiing capacity over the entire season with weekday capacity allowing for more than a doubling in skier visits. It is apparent that the length of season in the East generally coincides with the 100-day truncated season and little opportunity to accommodate skiers outside this time period exists.

In the Midwest, weekend use of the areas was high and the weekday utilization extremely low. The net effect is that overall utilization was about the same as experienced in the East during the 1978-79 season. The greatest opportunity for accommodating additional skiers in the region occurred during the week when more than a doubling of skier visits can be realized before excessively high utilization would result. A secondary opportunity for additional skier visit accommodation would be to increase the use of the shoulder seasons on either end of the truncated season. Based on a rather limited sample of the Midwest areas (only those operating under U.S.F.S. leases) the supply of available skiing appears to be adequate to meet the current and projected demand assuming a shift in demand away from weekend use can be effected.

The West, as would be expected, is the most difficult region to assess. The large geographic distribution of ski facilities coupled with the complex nature of the skier mix makes generalization of the regions ski facility analysis inappropriate. Those areas serving a predominately local day skier market exhibited characteristics similar to those experienced in the East and Midwest--a large proportion of overall skier visits occurred on weekends and weekend utilization rates were so high as to virtually preclude additional skier visits on weekends. Several areas in Washington, in addition to the example of Mt. Baker, realized greater than 100 percent utilization on weekends. Many of the California areas had mid-80 percent to low 90 percent utilization of facilities. In Colorado, Vail operated at 102 percent weekend use and most other front range areas operated above 80 percent on weekends.

Several destination areas realized higher midweek utilization and decreased weekend use. This is a result of the destination skier arriving on the weekend and not starting skiing until Sunday or Monday. At areas such as Aspen, weekend skiing accounted for only 28 percent of the total visits to the area. The destination areas in the West achieved better than 60 percent utilization during the weekday period. These areas will find it difficult to increase weekday skier visits in the future.

Overall utilization for all types of areas in the West was generally found to be greater than 50 percent and at least 15 percent higher than in the East and Midwest. The percent of skier visits occurring within the truncated season was low enough to suggest that some limited growth in demand could be accommodated during the shoulder seasons.

Because of the same list of variables enumerated above regarding establishment of capacity such as snow conditions, equipment shutdowns, and difficulty of redirecting skier behavior to go skiing early and late season, 60 to 70 percent utilization is generally accepted as full utilization. Based upon this standard many areas have no excess capacity for future demand. The ski areas of the West have reached the situation where many of them have achieved effectively full utilization.

This region of the country has become the major supplier of skier visits for the demand created nationwide. If skier behavior continues to dictate Western skiing as the norm, additional facilities will be required to meet the future demand. If, on the other hand, and it seems unlikely, skiers can be persuaded to ski within their region--especially the Midwestern skier, then in the short run (3 to 5 years) existing capacity in the West along with new facilities to be discussed subsequently will be adequate to accommodate the anticipated growth nationwide.

New Development

In the next five years, daily capacity in the West could increase by 30,000 skiers per day through the development of five major areas and expansion of many existing facilities. If this projected new daily capacity comes on line, three million additional skier visits during the truncated season and as many as 600,000 skier visits during the shoulder season could be realized. The potential for several other areas presently in the planning stages to be developed exists. However, with the exception of Beaver Creek near Vail, Colorado, no other proposed Western area is a certainty. A myriad of issues cloud the future development of skiing in the U.S.

Constraints to Development

As has been noted, 1969 marked the leveling out of the rapid growth of ski facilities. The year the National Environmental Policy Act (NEPA) went into effect was also 1969. This single piece of legislation heralded a new era in the U.S. and one that has had significant impact upon ski area development in the country. The environmental consciousness that has grown over the last ten years has placed new ski area construction in limbo all over the West. Questions are being asked, the answers to which often signal the demise of a new area proposal.

Through the Environmental Impact Statement Process, proscribed by the NEPA legislation, government agencies (primarily the U.S.F.S.) are being held accountable to the general public for all decisions regarding ski area expansion and new area development. No longer does an area operator sit down with the forest supervisor and prepare a plan for his area. The would-be developer since 1969 has had to enter into the NEPA process and be prepared to spend five or more years and invest upwards of $1 million to reach a "go" or "no-go" decision.

All over the West the last decade has witnessed major new development proposed only to see them denied. In California, San Gorgonio, Mineral King and Moses Maggie have been turned down. Independence Lake is apparently headed towards the same fate. In Montana Ski Yellowstone successfully weathered the protests raised through the EIS process after nearly nine years, only to find the backers so strung out by the effort the project is in jeopardy of moving ahead. Heritage Mountain near Provo, Utah, has experienced similar problems in getting off the ground.

In Colorado the score card stands at one success and several losses with uncertain outcomes on many other proposals. Beaver Creek will open eight years after it was initially proposed. Little Annie, on the backside of Aspen Mountain, was first proposed in 1965, after entering into the Colorado Joint Review Process in 1978 a decision will be forthcoming by 1982. The Hospital Building and Equipment Corporation proposed Adam's Rib near Eagle, Colorado, in 1973. Six years and $15 million later the project is at a virtual standstill. The Aspen Skiing Corporation, operators of four areas in Colorado, made the decision that no new areas were going to be approved in Colorado and began development of Early Winters in Washington. After five years the project was abandoned and the company took the development dollars to British Columbia where they will open the first phase of a 14,000 skier per day mountain in 1980, only four years after embarking upon the project.

The ten-year effect of the NEPA legislation has been to effectively stop ski area development on Federal land since 1971. This has occurred at a time when demand for skiing has been growing at 8-10 percent per year.

Recently a potentially more restrictive action was mandated by Congress--Rare II. Conceptually, Rare II, the Roadless Area Review and Evaluation program was based on a sound premise--inventory and evaluate U.S. Forest Service lands for Wilderness Consideration. Some 46,948,000 acres were evaluated and now are in a state of "defacto wilderness" until the management decisions are completed. The impact of Rare II has been to withdraw millions of acres of Federal land from consideration for ski area development. The myriad of conditions necessary for a successful ski facility hinge upon one virtually immutable key element--suitable terrain. Sno-engineering has inventoried ski terrain over the entire U.S. and Canada for over 25 years and its President, James Branch, has concluded that less than 0.1 percent of the mountainous terrain of the U.S. and Canada is suitable for commercially viable ski area development. Potential new ski sites are less likely to be found than new Wilderness areas. Yet identification of ski potential was not a charge of the Rare II program. Skiing was treated as a residual consideration in reaching recommendations for land use, but site inventories were not carried out as part of the Rare II process.

The NEPA, Rare II and a new-found consciousness directed towards environmental preservation has in ten years virtually brought ski area development to a standstill in the Western U.S. This has occurred at a time when strong demand for facilities has been documented through numerous studies. Additional demand has been directed towards the region most able to provide skiing--the West. The result of the demand curve's upslope and the supply curve's flattening has been overcrowding of existing facilities and a crushing pent-up demand for new areas. With 14 million skiers and approximately 700 ski areas, at present, there is one area for every 20,000 skiers.

Future Prospects

Demand has outstripped supply on a national basis. The Midwest and East appear to have sufficient capacity to meet regional demand for the next three to five years. In the West the need for immediate and major new facility development is apparent.

Without new development which if approved today could not come on line before 1983-84, the East and Midwest will be over capacity in less than five years and millions of potential skiers will have been involuntarily rechanneled into other leisure time activities.

Ticket prices will most likely continue to increase at least the historical 7.9 percent rate due to the over demand that will continue to exist, and the increased operating costs that will be incurred by areas as a result of over-use and crowding of present facilities.

Cross-country skiing will increase in popularity in part because of the limited availability of downhill facilities and rising costs. Energy conservation measures may spur interest in cross-country skiing because of the ready access of ski touring terrain in many parts of the country. Emphasis on U.S.F.S. planning should focus on winter use of trails, picnic areas and campgrounds. Increase conflict between user groups primarily snowmobiles and cross-country skiers will become a major management problem in the future. Greater winter facilities and operating budgets will be required to meet the increased use of the forests by ski tourers.

The concept of winter multiple recreation use of federal lands will become increasingly important over the next five years. Planning and budgeting to accommodate this demand should have begun five years ago. A method to investigate the national priority that should be placed upon downhill ski development should be devised and implemented quickly.

HIGHLIGHTS AND TRENDS

The paper has covered a great deal of information on current trends in the demand for and supply of skiing. This section concludes the paper, highlighting some of the more notable findings and trends.

1. Skiers are demographically different from the U.S. population. Ski studies show males account for about 60 percent of the skiers and 48 percent of the adult population; about one-half of skiers are single, but only 20 percent of U.S. adults are single; about 70 percent of the adult skiers are under 30, while only 30 percent of the U.S adult population is under 30; about 20 percent of adult skiers have post-graduate education, compared to less than 10 percent of the U.S. adult population; and about one-third of the alpine skiers live in households with $25,000 and over annual income, while only 16 percent of the total population live in such households.
2. Present population and demographic trends favor the continued growth of both downhill and cross-country skiing.
3. The dramatic increase in singles will continue to boost the skiing market.
4. Women will move into skiing in greater and greater numbers.
5. Downhill skiing will continue to grow by 7 to 10 percent per year over the next five years.
6. The participation rate in the sport of skiing will continue to rise. The long-run growth of the industry will depend on increasing the participation rate as there will be a substantial decrease in the teenage segment of the population which has been feeding large numbers into the sport.
7. Cross-country skiing will grow at a faster rate than downhill skiing. As new equipment, clothing, etc., continue to develop, the growth of cross-country skiing will mirror that of downhill skiing in the 1960s. New cross-country ski centers and more abundant supply will spur this growth.
8. The fastest growing ski market in the country is the South.
9. The closer people live to skiing, the more likely they are to ski.
10. The automobile will continue to be the major method of transportation to the ski area; however, energy considerations will make air become a more important mode of transportation for the destination skier. Fly/drive packages will become more common.
11. The demand for skiing is outstripping supply. Utilization of ski areas will increase until limitation plans will have to be developed to match capacity with skiers.
12. Future supply will be constrained by environmental legislation, lack of capital and government regulation, and will not keep up with demand.
13. The West is the most highly used ski region in the country and the most frequently mentioned as the place potential skiers would like to go. The West must have expansion if growth in demand

is to be satisfied.

14. The Eastern and Midwestern ski areas can accommodate limited growth in activity.

15. The U.S. society is moving from a "work ethic" to a "leisure ethic." The youth of the country are demanding recreation and leisure as a right. Consequently, winter recreation planning is necessary if land use management policies are to be responsive to demand created by all user groups.

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HUNTING AND FISHING TRENDS IN THE U.S.[1]

J. John Charbonneau and James R. Lyons [2]

Abstract.--Trends in hunting and fishing participation are evaluated on the basis of responses to a telephone survey of the U.S. population conducted as a part of the 1975 National Hunting and Fishing Survey. Probability of participation in hunting and fishing is a function of the respondent's age, sex, income, place of residence, and a number of supply characteristics. The availability of forested acres and total public recreation acres in a participant's state are also significantly related to the probability of hunting and fishing. The probability of non-participation is also evaluated. The impact of future changes in population parameters and pertinent supply characteristics upon hunting and fishing trends and the related policy implications are discussed.

Introduction

This paper will review hunting and fishing participation data to determine if any trends can be estimated and, to the extent possible, what causal factors influence these trends. In the traditional sense, a comprehensive analysis of hunting and fishing trends has not been undertaken. The scarcity of comparable time-series data is one probable cause for the paucity of trend analyses along with the small degree of success achieved by those who have tried. Another factor is that the underlying causal relationships which explain participation in hunting and fishing for the nation are just now being examined in a systematic way by Kellert at Yale in his study of American Attitudes Toward Animals. The fitting of a line through data points does not get the resource management information necessary for decision making. We must look beyond the trend line to the causal relationships and especially those that have some degree of public control. This research area, which calls for a multidisciplinary approach, will be where answers are found to help decision makers in the management of wildlife resources for the future benefit of society.

This paper is divided into three sections. First, a review of the existing data from past recreational surveys and state license data will be undertaken; second, an analysis of the data to determine causal relationships that could provide some insights into future trends; and third, an analysis of the causal variables with conclusions regarding the future participation rates of hunters and fishermen.

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[1] Paper presented at the National Outdoor Recreation Trends Symposium, Durham NH, April 20-23, 1980.

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Hunting and Fishing Participation Data

The most complete time series data on hunters and fishermen are the state license figures. Excluding saltwater anglers, these numbers are available on a state by state basis back to the year 1932. However, these figures are representative of all sportsmen who acquired a license to hunt or fish and do not include those categories of people who are exempt (e.g., for reason of age both young and old), those who hunt or fish on their own land, etc. Each of the 50 states has its own laws pertaining to exemptions from licenses. Figures 1 and 2 show the number of fishing and hunting license holders from 1955 to 1978. Projecting the number of license holders to the future would give us an estimate of participation rates but these figures would not include participation by the legally unlicensed group. The actual size of this latter group has not been estimated, but it most likely varies from state to state and may account for a considerable percent of participation in some parts of the country. For purposes of this paper, estimates of illegal hunting and fishing will not be included as it is unlikely it could be estimated from survey data.

A second source of statistics on hunters and fishermen comes from National Surveys. Since 1955 Hunting and Fishing surveys have been conducted by the Fish and Wildlife Service at 5 year intervals. Figure 3 shows the estimated total hunters and fishermen from 1955 to 1975. These figures represent participation by sportsmen 12 years of age and older. The upward trend evidenced by both hunting participation rates shows that increasing numbers of people are hunting and fishing. However, measured as a percent of population, the increased participation becomes a decreasing percentage of the U.S. population. This indicates that the relative popularity of fishing and hunting are declining. However, the relative popularity of any recreation is affected by changing preferences and trends in complementary activities and therefore may show up as some form of cyclical behavior over time. The difference between license holder trends and the national survey figures has not been completely reconciled. The National Surveys have not been designed in the past for direct comparability. License figures are a simple tally of sportsmen while the hunting and fishing survey estimates are based on population samples that are not restricted to that segment of the population that is required to have a license to hunt or fish. Therefore, it is expected that the survey estimates will be larger than the license figures. The expected magnitude of difference is unknown. Until such time as we fully understand what is being measured by the National Surveys there is a reluctance to predict the future with this data base. This conclusion holds for the other national surveys as well.

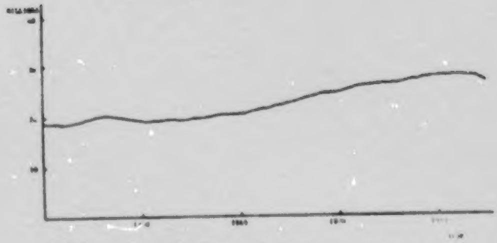

Figure 1.--Number of fishing license holders 1955-1978

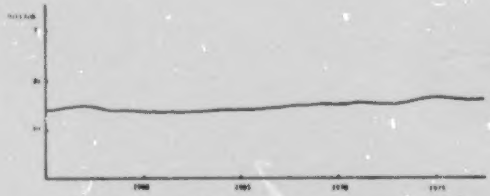

Figure 2.--Number of hunting license holders 1955-1978

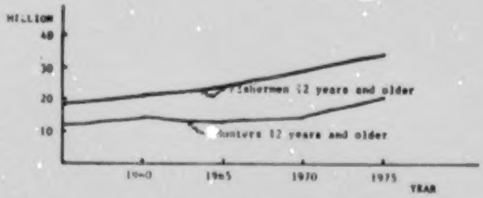

Figure 3.--Estimated number of fishermen and hunters in the U.S. 1955-1975

A third source of hunting and fishing participation data comes from a screening survey used in the 1975 National Survey of Hunting and Fishing. Using random digit dialing the population sampled was asked if they hunted or fished in 1975, and if they had not in 1975 they were asked if they had done so in 1972, 1973, or 1974. Table 1 presents the findings from a 10 percent sample of the screening questionnaire.

Table 1

A Comparison of Hunters and Fishermen who discontinued Hunting and Fishing in 1975

	Hunted in 1975	Hunted in 1972, 1973, or 1974 but not in 1975	Fished in 1975	Fished in 1972, 1973, or 1974 but not in 1975
Head of household	61.9	62.1	41.8	41.8
Spouse	9.4	20.6	20.0	27.5
Children	28.7	17.3	38.2	30.7

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In order to analyze these data the probability of not participating was estimated for both hunting and fishing in 1975. Data from sportsmen who had participated in the years 1972, 1973, or 1974 but not in 1975 and those who had participated in 1975 were used to estimate the probability that sportsmen would discontinue hunting or fishing. The independent variables used in the equation consisted of social, demographic and measures of availability of opportunity in the state that sportsmen lived in. This equation was estimated with cross-section data using ordinary least squares regression. The equation, estimated for hunters and fishermen separtely, was:

$$\text{Non-Participants} = f(\text{AGE}, \underset{+}{\text{AGE}}, \underset{-}{\text{SEX}}, \underset{-}{\text{INCOME}},$$
$$\underset{+}{\text{METRO}}, \underset{+}{\text{HEAD}}, \underset{-}{\text{WATER}}, \underset{-}{\text{COAST}}, \underset{-}{\text{FOR}}, \underset{+}{\text{TREC}})$$

Where: Non-participants = 1 for those who did not go in 1975 but did go in 1972, 1973, or 1974.

Non-participants = 0 for those who went hunting (fishing) in 1975.

AGE - the respondents age
AGE^2 - the respondents age squared
SEX - the respondents sex, 0=female 1=male
INCOME - the respondents family income before taxes
METRO - 1 if the respondent lived in a metropolitan area 0 if the respondent lived in a non-metropolitan area
HEAD - 1 if the respondent is the head of the household and 0 otherwise
WATER - the square miles of surface water in the state
COAST - the coastal miles in the state of residence
FOR - the forested acres in the state, in millions
TREC - total acres of publicly-owned recreation land in the respondent's state, in thousands

The a priori expectation on the signs of the variables are given below the variables. The estimated coefficients are in table 2. The age of maximum probability of non-participation is 55 for fishermen. Without the age square term being significantly different from zero the age of maximum probability was not computed for hunters. Interpreted this means that with other factors held constant a fisherman's probability of discontinuing fishing decreases after age 55. The lack of a maximum probability for hunters is most likely due to a greater commitment that hunters included in the sample may have to their sport. Therefore, there was not a specific age group where most hunters were discontinuing hunting.

Table 2

Estimated Non-Participation Functions for Hunting and Fishing

	(1)		(2)	
	Fishing	(t-value)	Hunting	(t-value)
Intercept	.1980	(12.4)	.3538	(9.1)
AGE	.0035	(4.2)	.0042	(2.2)
AGE^2	-.00003	(3.1)	-.00002	(.8)
SEX	-.0999	(10.7)	-.2455	(12.2)
INCOME	$-.4\text{x}10^{-7}$	(.3)	$.3\text{x}10^{-7}$	(.1)
METRO	.0175	(2.3)	.0933	(3.8)
HEAD	.0079	(.7)	.0019	(.1)
WATER	$-.44\text{x}10^{-5}$	(1.2)		
COAST	$-.61\text{x}10^{-3}$	(.3)		
FOR	-.0014	(2.6)	-.0035	(4.6)
TREC			$.13\text{x}10^{-5}$	(1.9)
F-ratio	25.9		38.7	
R^2	.0195		.0546	
N	11,738		5,373	
Age of Maximum Probability	55			

The probability of discontinuing fishing (equation (1) in table 2) indicates the influence of being male is negative and living in a metropolitan area is positive. Both of these findings are consistent with other research results. Income and being head of the household had no apparent influence on discontinuing participation. Looking at the influence of surface water availability it is not surprising that those states with more square miles of surface water have a lower probability of non-participation once a fisherman had been fishing in the past. The influence is not strong with a relatively high standard error but nevertheless it is present. The presence of forested acres also decreased the probability of non-participation. This is most likely due to the high correlation between forest acres and watersheds.

The influence of the social and demographic variables on the probability of non-participation in hunting (equation 2) was somewhat stronger than for fishing with approximately 5.5 percent of the variation explained. The influence of residence in a metropolitan area increased the probability of discontinuing hunting with other factors held constant. It can be interpreted that from a cross-section of hunters the probability of discontinuing hunting is increased if the sportman lives in a metropolitan area. A likely cause of this result is that hunting requires more travel time and cost for metropolitan residents than for non-metropolitan residents and therefore they may feel less committed to hunting as the costs rise over time.

As a measure of the availability of other outdoor recreation activities the variable TREC was included. Its positive coefficient indicates that hunters from states that have relative abundance of public recreation areas are more likely to discontinue hunting than hunters who live in areas where public recreation lands are less abundant. From the cross section of hunters in the sample it appears that income did not influence their decision about participation. It must be remembered that this data set contains only hunters and fishermen and the results only pertain to those who are already hunting or fishing and the factors that may influence their decision to continue in the future.

Looking to the future of participation in hunting and fishing activities the analysis shows that for fishermen the loss of currently available sites should increase the probability of non-participation. While the same is true for hunters, an increase in public recreation areas would further increase the probability of discontinuing hunting.

A Model for Determining Trends in Hunting and Fishing

The traditional models for extrapolating trend lines to the future do not capture the underlying relationships that cause trends to shift. Of particular interest are variables subject to policy manipulation by land management agencies. Specifically, it would be desirable to estimate the relationship between the availability of hunting and fishing opportunities and the probability of the general population becoming hunters or fishermen. To do a thorough analysis requires both cross-sectional and time series data on participants and non-participants, their social and demographic characteristics, the location of the hunting or fishing activity and a series of quantitative and qualitative variables describing both the sites used and others available nearby. Even though such a complete data base is not available to test hypotheses concerning determinants of fishing and hunting, this analysis will give insights into the practicality of pursuing this area of research.

The telephone screening survey used to determine participation for the 1975 National Survey of Hunting, Fishing and Wildlife Associated Recreation contains over 322,000 individual observations from 106,000 households. The screening questionnaire contains social and demographic characteristics of participants as well as non-participants in hunting and fishing. The sample includes approximately 2,000 households per state. A 10 percent sub-sample taken randomly from the telephone screening survey was used to test a limited set of hypotheses concerning the influence of policy variables on the probability that an individual would participate in hunting or fishing. Future projections of the significant variables in a probability equation will give an indication as to the expected direction of the trend for hunting and fishing.

The Model

It is hypothesized that the probability of an individual going hunting or fishing is associated with their social and demographic characteristics and the abundance of the areas where hunting and fishing take place in the individual's state of residence. A model for fishing and hunting is specified to account for the difference in hunting and fishing opportunities. Each equation is given below with the expected sign of the coefficients to be estimated.

$$\text{Fish} = f(\underset{+}{\text{AGE}},\ \underset{-}{\text{AGE}}\ ,\ \underset{+}{\text{SEX}},\ \underset{+}{\text{INC}},\ \underset{-}{\text{METRO}},\ \underset{+}{\text{HEAD}},\ \underset{+}{\text{WATER}},\ \underset{+}{\text{COAST}},\ \underset{+}{\text{FOR}})$$

$$\text{Hunt} = f(\underset{+}{\text{AGE}},\ \underset{-}{\text{AGE}}\ ,\ \underset{+}{\text{SEX}},\ \underset{+}{\text{INC}},\ \underset{-}{\text{METRO}},\ \underset{+}{\text{HEAD}},\ \underset{+}{\text{TREC}},\ \underset{+}{\text{FOR}})$$

Where: Fish - the probability of going fishing in 1975, 1 for fishermen and 0 for non-fishermen

hunt - the probability of going hunting in 1975, 1 for hunters, and 0 for non-hunters

The factors influencing the decision to either hunt or fish may not be fully captured by this limited set of variables. However, those variable that have policy significance (i.e., surface water, forested acres, recreation acres) are of the most interest from a management viewpoint. Table 3 contains the results of the estimation of the hunting and fishing equations. The equations were estimated with ordinary least squares. The dichotomous dependent variable violates the assumption of homoskedasticity of the error term ordinary least squares but the large sample size makes the cost of estimating the equations with probit or logit extremely expensive. The large sample size will minimize the OLS bias and for practical purposes the coefficients are not significantly different between OLS and logit or probit. The findings of significance for the policy variables and the signs of the coefficients are of major interest at this stage in the analysis.

Table 3

The Probability of Fishing and Hunting in 1975

	(3) Fishing	(t-value)	(4) Hunting	(t-value)
Intercept	.098	(10.6)	-.067	(10.3)
AGE	.0089	(19.0)	.0087	(26.5)
AGE^2	-.00013	(23.2)	-.00012	(30.7)
SEX	.2204	(35.8)	.1886	(43.4)
INC	$-.29\times10^{-6}$	(2.2)	$-.14\times10^{-6}$	(1.5)
METRO	-.0479	(9.1)	-.0808	(21.8)
HEAD	.0[illegible]55	(2.0)	.0758	(13.9)
WATER	.00003	(11.9)		
COAST	-.00012	(8.4)		
TREC			$.16\times10^{-5}$	(6.8)
FOR	.0014	(3.7)	.0015	(6.2)
F-ratio	325.6		720.5	
$\bar{R}^2$	.0888		.1609	
N	30,072		30,072	
Age of Maximum Probability	33		35	

The results in table 3 indicate that the probability of going fishing is at a maximum at age 33. That is, the probability increases until age 33 and then decreases as indicated by the negative sign on the age-squared variable. The probability is increased for males and for residents of non-metropolitan areas. Also, for those who indicated they were the head of the household the probability of being a fisherman increased. The results for hunting are the same as for fishing up to this point except the age of maximum probability is 35. Income had a negative sign for both hunters and fishermen. It appears that from a cross-section of respondents to the telephone interview the probability of going hunting or fishing decreased with increasing income levels.

The probability of fishing was positively related to the square miles of surface water in the respondents state and the quantity of forested acres. The forested acres variable was included as a proxy variable for other outdoor activities that may substitute for fishing. The positive sign on FOR indicates that states with a relative abundance of forest lands have an increased probability of fishing activity. The COAST variable was significant with a negative sign indicating that for this cross section of respondents those from states with considerable coastline had a lower probability of going fishing. All other variables held constant, the probability of a Rhode Island resident going fishing is higher than for a resident of Maine.

Interpreting the results for hunting, the expected positive sign for FOR was statistically significant indicating that increased forest acreage increased the probability of hunting activities. However, the sign on TREC is also positive indicating that an increase in public recreation acreage increases the probability of hunting. This result may be related to the fact that many areas are managed for multiple use and the increase in acreage for public use may also serve as wildlife habitat for game species thereby increasing the probability of hunting.

Future Participation in Hunting and Fishing

The participation rates estimated for 1975 were 31.6 percent of the U.S. population for fishing and 13.5 percent for hunting. An analysis of some of key variables used in the participation equation will give some insights to future participation rates. Even though precision is not possible at this time at least a determination can be made as to the direction of the trend for the future. The variables used for this determination are AGE, METRO, WATER, FOR, AND TREC.

AGE

The median age of the U.S. population is gradually increasing. After the post WWII baby boom the birth rate began to slow down in the U.S. With increases in life expectancy the median age of the population in 1975 increased to approximately 29 years. For each 1 percent increase in the median age of the population the probability of going fishing will increase by .865 percent and hunting by 1.99 percent.

METRO

In recent years there has been a shift in the population growth rates of the metropolitan and non-metropolitan areas. The metropolitan areas have grown at a rate of 3.4 percent from 1970 to 1974 while non-metropolitan areas grew 5.5 percent during the same time period. This is a reversal in trend from the 1960's to 1970's that is expected to continue to the 1980's. For each 1 percent increase in non-metropolitan area population the probability of going fishing will increase by .046 percent and .252 percent for hunting.

WATER

The square miles of surface water for most

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states varies only slightly over time. However, projects such as dams, canals, reservoirs, and man-made lakes are constantly being built. Most often such alterations of the landscape are a trade-off for running water at only a small net gain in surface acreage. For each 1 percent of net gain there is an increase in the probability of participation of .122 percent.

FOR

The trend in forested acreage across the country has been fairly constant for the past 10 years. Future demand for forest products may cause an increase in timber cutting. Increase in timber cutting and the shifting of private forest lands to other types of agricultural production may cause a decline in forested acres in the future. For each 1 percent loss of forest land the probability of going hunting will decrease by .117 percent. For fishing the probability will decrease by .047 percent.

TREC

The total acreage in publicly owned recreation lands which contains fish and game areas and natural wilderness that provide habitat for game species, is increasing over time. For each 1 percent increase in publicly owned recreation levels the probability of going hunting increases by .068 percent.

Summary

Over the next decade the U.S. population pyramid will show an increase in the number of U.S. residents in the age categories where participaution in hunting or fishing is a maximum. Also, the population growth of non-metropolitan areas is expected to continue, therefore there should be an increase in the number of U.S. residents that have the highest probability of going hunting or fishing. The factors that ultimately influence the actual participation are only partially captured by the changing availability of the activity in the individuals state of residence. Such factors as square miles of surface water, forested acerage and public recreation areas, which include fish and game areas and wildnerness areas, will contribute to increasing the participation in hunting and fishing in the future. However, the number of acres or miles of surface water, forests, or public recreation areas necessary to augment the current stock of these resources by 1 percent is not likely to have much impact on hunting or fishing over the next decade. The coefficients on these variables are trends only in an aggregate sense. However, if the specificity of these supply variables could be increased i.e., surface water of a specific type or quality and forested acres that are the habitats for specific game species, perhaps the coefficients would show a larger impact and affect trends for the future in a more discernable way.

The usefullness of adding policy variables that can be affected by resource management agencies has been shown to be a promising tool to aid in predicting the future of hunting and fishing activities. Further refinement of the model specified and more precise policy variables awaits the results of the 1980 National Survey of Fishing, Hunting, and Wildlife Associated Recreation. The use of 1980 Survey data will enable us to test the robustness of the model and any change over time in the structural parameters. This study is in the developmental stage and clearly more work needs to be done before reliable projections can be made.

OFF-ROAD VEHICLE TRENDS

Garrell E. Nicholes[1]

INTRODUCTION

Today I would like to start this part of my program by generally describing the vehicles, the users, and the current problems. Later on I will break out specifically motorcycles and snowmobiles to discuss. When I was asked, approximately a year ago, to fill this assignment, I began by telephoning those I knew in public and private ORV management positions. I sent letters and made many personal contacts as I traveled around the United States. As material arrived at my desk, I realized that "surface trends" research information, separate from "in house", was grossly lacking for this form of outdoor recreation. This paper is my attempt to verbalize the information we received. I warn you that what you hear me say may not be today's popular thoughts. With approximately 500,000 miles of travel in my off-road vehicle business responsibilities, I have realized that lack of valid quantity and quality trends information has been one factor contributing to current emotionalism, false concepts, and gross biases both for and against this activity. Another problem has been that there are many who profess understanding in planning for this reaction because they have some specialized knowledge that merely relates to the off-road vehicle. However, in fact, only a few public and private planners and land managers, academic types and others know and understand the vehicle, the land base and the enthusiast well enough to be credible problem solvers. Most problem-solving efforts have been crippled by confusion and misunderstanding from lack of good problem solution models. Special interest groups have resorted to political infighting.

Let me give you an example of current research information which, if pursued in more depth, could help solve some ORV problems we now face: Recreation, in and of itself, is a personal, multi-dimensional activity. It is done during one's leisure time and locates itself on a very broad continuum between the sharp contrast of furious involvement and contented relaxation. It may be backpacking, boating, horseback riding, tennis, exploring, camping or just eating, etc. As with each of these activities, motorized vehicle use is a dimensional extension of the individual that encompasses his physical performance. It rewards the participant for his skill and aptitude and he is further rewarded sociologically by his peers for his involvement. Lastly, he gains his own personal psychological growth as he reacts successfully to both positive and negative aspects of the experience.

I think we can sum up this very heavy, but important, concept by saying that recreation, and more specifically, off-road vehicle recreation, is different things to different people. It has to be researched, planned and provided for with this understanding.

Emotionalism and related problems we see today break down into three major areas: (1) a stereotyped image leading to unrealistic attitudes and actions towards the vehicle and its operator by the uninformed; (2) no standard base of definition, resulting in (3) poor inter/intracommunication. For us to discuss this phenomenon more effectively, we must achieve a common level of understanding.

As previously mentioned, there are many kinds of "off-road vehicles" (ORVs): motorcycles, 4-wheel drive units, dune buggies, snowmobiles, etc. ORVs can be specifically designed for many uses, such as play activity, pseudo competition, structured competition, and recreational trail riding. The most common definition of ORV use implies only unstructured use of the equipment following no pathway on a resource. Knowledgeable viewers of the sport would expand the definition to acknowledge a substantial additional activity--that of using a lineal corridor, such as an unpaved, a graded or ungraded road, or a single wheel or similar pathway from Point A to Point B. (These definitions relate to both the design capabilities of the vehicle and how the enthusiast uses the machine.) The Statewide Planning Criteria chart will show relationships between machine and enthusiast for both definitions above. Who is the enthusiast? He is:

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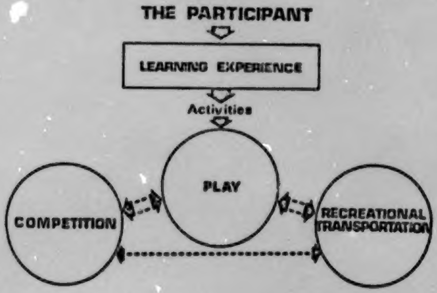
- (1) One who is learning to operate the vehicle,
- (2) One who is engaged in a play and/or unstructured competition experience allowing him to use the machine to produce the recreation in and of itself, or
- (3) One who is involved in structured competition which enables him, after he masters the physical and mental requirements, to commit totally to the activity for a remunerative reward of some kind,
- (4) One who uses the vehicle also as a tool of transportation to participate in other recreation activities, such as camping, picnicking, fishing, photography, cultural sightseeing, riding for pleasure, and many, many more opportunities.

STATEWIDE PLANNING CRITERA



As I travel around the United States, working with federal, state and local agencies on this phenomenon we call off-road vehicles, I sometimes wonder if the representatives of government bodies don't cringe just a little at the challenges these vehicles present to them. I am sure they are hoping that "change" will somehow alleviate the controversy between ORV users and non-users, and calm the political waves that seem to follow this activity.

Gerald Jacobs stated in his writing "Conflict in Outdoor Recreation" that:

> While theories of conflict are varied, many do share the perception of incompatibility as a common concept. In outdoor recreation, this concept suggests two factors at work: the perception of differences among people's lifestyles and the evaluation that encountering such differences is undesirable.

Positive adaption to change when some react in an unbiased manner to ORVs takes effort, not so much "reactive effort" as merely becoming informed. The "uninformed" often emotionally criticize ORV activity saying it creates high "impact" and seriously question it as a form of legitimate recreation. Even though alive and flourishing today, this thinking seems to be academic and after the fact.

In his April 14, 1971 press release announcing the establishment of an Interior Department Task Force to study the use of off-road recreation vehicles (ORRV), Secretary of the Interior Rogers C.B. Morton said: "We recognize that off-road recreational vehicle use is one of the many legitimate uses of federally-owned lands." To my knowledge, that philosophy has never been changed.

Stereotypes of ORVs have emerged over the years and persist in the minds of a large portion of the population. Reason is often overshadowed with statements that the vehicles "eat land"; "create environmental havoc"; "initiate devastating effects"; "disrupt animal life"; "impact moose"; "conflict with other human uses of the land", etc. The vehicles may, in some circumstances be what the above stereotypes depict them to be; however, more knowledgeable persons feel that such references could be eliminated with responsible research, planning, and facility implementation and management. Dr. Stephen McCool, in a talk before the forty-third North American Wildlife Conference, said, "ORV use appears to be more a function of intuitive managerial expertise and judgment and political pressure than a direct result of systematic problem-driven research."

John D. Peine, Ph.D., in an article entitled "Land Management for Recreational Use of Off-Road Vehicles, 1972," said:

> ORV owners are as diverse as their vehicle designs. Personal interest and use may influence land travel patterns and attitudes toward the landscape. To the performance-oriented vehicle owner, the vehicle may be an end in itself, with its mechanical development being its major recreational value. These attitudes are important to the land manager developing a plan to provide quality experiences for the various types of vehicle users. It appears doubtful that one management procedure would be adequate for all types of vehicle users.

Perhaps the definition of vehicles and user preferences should follow a multi-dimensional activity reasoning. Dr. Peine lists in priority activities popular among all off-roaders: hunting, seeing the countryside, challenging terrain, camping, fishing, exploring, picnicking, comparing performance, observing wildlife, taking photographs, etc.

Dr. McCool, in analyzing the 1977 national recreation survey, noted a few interesting facts about ORV users:

> "Despite years of research, we really know very little about the behavior and needs of ORVers.
> *ORVers tend to be much more recreationally active and diverse than non-ORVers.
> *ORVers view outdoor recreation as having greater importance than non-participants."

Dr. Keir Nash, in his research for the State of Washington, 1979, entitled "Understanding and Planning for ORV Recreation," summarized participant communication of problem perceptions of the activity this way:

> "An important feature of the off-road recreation policy debate is the frequency with which participants starting from different premises, talk past each other. Perceiving the problem quite differently, they interpret the relevant data differently."

Dr. Nash clarifies the communication breakdown between users and non-users this way:

> "The argument is advanced that underlying the conflict over ORV recreation are very different, occupation-related attitudes toward the machine. It is suggested that the real inconsistency lies not in mechanically-oriented-by-trade ORVers finding no disjunction between 'using machine' and 'appreciating nature', but rather in attitudes of verbally and visually oriented 'non-mechanicals' (professors, environmentalists, etc.) who think it all right for themselves to bring their 'tools in trade' into nature (books, scientific instruments, etc.) but not for the mechanically-oriented to perform the equivalent act. The duality between machine and nature is arguably created in the minds of the opponents--not a demonstrable 'real entity'."

In Summary of the Introduction

A vast amount of emotionalism and stereotyping of the sport exists due to a lack of knowledgeable people in planning and management for these vehicles. Basic definition information is lacking. The off-road vehicle enthusiast, by policy, is participating in a legitimate recreation activity. Past and current research has not provided information for adequate problem solutions. A communication breakdown exists among users, as well as between users and non-users. The ORV enthusiast is looking for social, physical, psychological recreational experiences, particularly "getting into nature". He is significantly more recreationally active in the out-of-doors than non-motorized participants, and because of his "mechanically-oriented-by-occupation attitudes", has difficulty communicating with or understanding non-machine-oriented resource recreators.

Government

Recently, while studying a number of state comprehensive outdoor recreation plans, I was able to put into words what the concerns of public policymakers and resource planners and managers were as they relate to off-road vehicles. Those thoughts about ORVs, generalized as simply as possible, are:

> *The subject is controversial.
> *ORV recreation legitimacy is still debated.
> *Noise is a serious problem.
> *ORV resource damage is evident.
> *Illegal and unmanaged use is a major cause of damage to public and private lands.
> *Planning to accommodate this recreation is necessary.
> *A need exists for providing opportunities, but the enthusiasts' needs must be identified and evaluated.
> *Few public agencies are providing opportunities, which encourages users to illegally trespass and operate their machines in unmanaged ways.
> *Current environmental and social problems will be compounded by failing to provide for the needs of ORV enthusiasts.

Some other ORV concerns of state public officials are:

> *Involvement of the federal government on public lands, as required by Executive Orders 11644 and 11989 continues to be a concern.
> *Requests from special recreation interest groups for the recreation dollar to provide facilities and programs is outpacing the means to generate the funds.
> *Questions of legitimacy of this activity arise as the availability and cost of recreation energy becomes a tradeoff with utilitarian and commerce activities.

Rogers C.B. Morton gave the legitimacy label to ORVs, but he also announced, in 1971, the establishment of an Interior Department task force to study the use of off-road recreation vehicles: "The need for planned action to reconcile the competing demands involved in the use of off-road vehicles is urgent." His charge to the task force was "to develop, in cooperation with the states and other federal agencies, conservation interests and the industry, a management plan to assure an optimum of recreation use with a minimum of environmental conflict." Unfortunately, nine years later, that charge for the most part is unmet.

As documented in the 1978 nationwide outdoor recreation plan, task force report Phase I...the San Joaquin County Council of Governments said:

> "It is obvious that off-road vehicles are not going to go away; therefore, there is a need for more areas where they can be appropriately used and conflicts minimized."

In recent years hundreds of laws, executive orders, and outspoken environmental groups and sympathizers have brought about increased restrictions and constrictions on ORV use of federal lands. This pressure is putting a further increased burden on states and local governments to solve existing problems. States have, for the most part, been ill-prepared or have not wished to respond with responsibility to this emotion-ridden recreation activity. Fourteen federal government agencies and offices currently "guide" and "regulate" ORVs in approximately twenty-four areas of concern. One Department of the Interior agency said of the legislative mandates: "In many instances these laws and directives are conflicting. Regulations to date to implement the laws have not been fully promulgated. Enforcement authority has yet to be effectively delegated."

Two more areas are of vital concern in shaping the future of ORV activity in the U.S.--the economy and energy.

Present economic moves by federal and state governments are shifting the burden of funding from these agencies to outdoor recreationists themselves. Dr. Douglas Sessoms, futurist and chairman, Recreation Administration, University of North Carolina, has said, concerning future recreation funding, "We must look for alternative sources of funding...a more diversified pattern of funding must be developed, e.g. taxes, grants, user fees, all of these will be required to sustain our efforts." Outdoor recreation enthusiasts themselves seem to concur with Dr. Sessoms, as a recent Michigan household study has borne out. To the question, "In general, do you think Michigan's public recreation should be paid for mainly through fees and charges, through general taxes, or both?", they responded with:

Fees and charges	50 percent/households
General taxes	13
Both	36
Other	1

Energy availability and future costs are another concern, not only of government suppliers, but of non-users who criticize motorized vehicle use on grounds that it may not be classed as a legitimate recreation.

Estimated motorized recreational fuel consumption from a recent Council of Environmental Quality (CEQ) "Off-Road Vehicles on Public Land" report can possibly put in perspective the energy question.

Snowmobiles:
53 gallons per year per vehicle
2.2 million snowmobiles
Fuel consumption = 116.6 million gallons

Motorcycles:
30 gallons per year per vehicle
(1,500 miles per year divided by 50 miles per gallon)
5.4 million ORV cycles
Fuel consumption = 162 million gallons

Dune Buggies:
33 gallons per year per vehicle
(500 miles per year divided by 15 miles per gallon)
250,000 dune buggies
Fuel consumption = 8.25 million gallons

Four-Wheel Drive Vehicles:
500 gallons per year per vehicle
(5,000 miles per year divided by 10 miles per gallon)
1.5 million 4x4s used off-road (very rough estimate)
Fuel consumption = 750 million gallons

Subtotal	1,036.85
& other ORVs	13.15
Total	1,040 million gallons

I think Mr. Russ Shay's comment as editor in the July Sierra Club ORV Monitor editorial on this subject best sets a perspective as the situation is today: "Is that less than one percent (of gasoline consumed by all off-road vehicles) a terrible waste? People who say YES usually yield to a prejudicial judgment that ORVs are non-productive and, therefore, non-essential, and eminently expendable...But, once you start advocating "fuel censorship" by government, watch out. It's a Pandora's box..."

The high interest in outdoor recreation of ORVs over non-motorized participants suggests, as does the McCool analysis of the nationwide survey, that motorized vehicle participants will take "shorter trips for outdoor recreation... and it is likely to lead to higher frequencies of conflict with other recreational experiences and land uses."

In a 1979 Utah State University Department of Forestry study of 1500 randomly-selected households in six major metropolitan centers...a large majority agreed they would take less frequent trips (79.2 percent) and select vacation locations closer to home (76.6 percent) if energy became scarcer.

Enthusiasts' Problems and Needs

While government, environmentalists, and the public stereotype users into increasing restricted programs, the ORVers generally identify their problems and needs to be these:

*Federal, state, county or community governments are developing no visible ORV programs or facilities.
*Existing facilities and programs are poorly maintained and crowded.
*Former riding areas have been closed with no new alternatives being provided.
*Public agency ORV policies are either inconsistent or nonexistent.
*Few trained ORV administrators currently implement and operate facilities or programs.
*Major communication gaps exist between ORVers and federal and local land planning and management agencies.
*Few educational programs are in existence to objectively teach users, non-users, legislators, administrators, land planners and managers about ORVs.
*Non-participants inaccurately perceive ORV impacts; users believe those perceptions are more emotional than reasonable.

The Motorcycle

Let's focus on one of these vehicles, the motorcycle, and make some observations. There are 7,305,000 motorcycles in the U.S. today. You may appreciate that approximately fifty percent of the cycles sold each year are road bikes, and the other fifty percent, or 3,978,400 are off-road bikes. On-road and off-road motorcyclists annually generate approximately $6.1 billion in consumer sales and services, state taxes and licensing. In 1978, an estimated 4.7 million off-road capable motorcycles were used by 11.7 million people, which generated over $3 billion in consumer sales and services, state taxes and licensing. Last year the sales of off-road bikes to Americans exceeded 600,000 units.

Off-road motorcycles accumulated 50 percent of the 4.3 billion miles traveled last year by off-road/off-highway cyclists combined. Off-highway dual purpose cycles accounted for 27 percent of the mileage, and on-highway cycles accounted for 23 percent of the mileage. The number of cycles (on-road and off-road) retired each year (est. 1978) is 1.7 million. To put in perspective the 4.3 billion miles traveled by off-road, dual-purpose, and on-road bikes, all motorized vehicles in 1978 traveled an estimated 1,504 billion miles.

Motorcycle sales are increasing in response to the current energy crisis. Total sales through August 1979 look like this: under 125cc up 133.8 percent; 125 to 349cc, up 30.3 percent; 350 to 449cc, up 48.8 percent. The Motorcycle Industry Council says:

> "The up-demand for motorcycles is due in part to some families buying a cycle for short shopping trips, etc., instead of buying a second car. Fuel cost is a major factor...cycles can get 80-90 miles per gallon, an important consideration."

Total sales this year are expected to increase about ten percent. Utilitarian and recreational use of the motorcycle will likely continue to promote increased consumer acceptance as the present economy and energy situation lasts.

According to the 1977 National Recreation Survey, among those who engaged in recreation activities more than four times during the past twelve months, "driving vehicles or motorcycles off road" was more popular than:
*Hunting,
*Camping in developed or primitive areas,
*Ice skating outdoors,
*Canoeing, kayaking, or river running, or
*Cross-country skiing, and was as popular as
*Boating

Cycle Magazine's 1977 subscriber survey indicated that their readers during the last twelve months personally participated in:

*Camping	49.6 percent
*Fishing	49.6
*Hunting	40.4
*Boating	39.3
*Bicycling	38.2

Demographics

The ORV user is typically a married male, average age of 29.8 years who has attended some college, and is in a craftsman or foreman position. His average income is $18,928. Seventy-seven percent have previously owned a motorcycle; 23 percent of current owners have never owned one before.

Dr. Keir Nash, whom we have previously quoted, says:

> "Underneath a surface of similar average education, income, family lifestyle, there appear to be important differences--

especially in regard to the percentages of college-educated ORV recreationists (low, and not increasing substantially over the generations) and to the percentages of those in skilled craftsman and manual labor occupations (high, as is also union membership). There are disproportionately few high-status professionals among the ORV recreationists, except for engineers."

Recent happenings in motorized vehicle sales have brought much speculation about future direction public agencies should take in research, planning, and management. Private industry is also looking closely at future market opportunities and problems that may arise from the economy, energy, federal and state laws and regulations.

Off-Road and Dual-Purpose Motorcycles According to the Motorcycle Industry

The off-road motorcycle, as well as the dual-purpose machine, has suffered from the new emphasis on the utility aspects, rather than the recreational aspects, of motorcycling. The off-road cycle decreased 4.3 percent in unit volume during the first half of 1979.

(and)

Dave Sanderson, Executive Director of the New England Trail Riders Association, says, "We are viewing the backside of a fad. We are seeing the maturation of a recreation activity and are witnessing a plateau of new enthusiasts."

Sanderson continued, "Unlike snowmobiling, whose users are concentrated in rural areas, motorcyclists in the northeastern United States are located in urban environments." He said, "I foresee that users will seek more recreational trail riding activity than play areas in the future."

Snowmobiles:

Snowmobiling has erupted from an insignificant activity in the early sixties, engaged in by enthusiasts mostly within the upper snowbelt states, to one of the most popular winter outdoor recreation activities today.

Currently, 1,900,000 (est.) snowmobiles are in use in the United States with approximately 14,200,000 snowmobilers participating in the sport. Snowmobiling and directly-related economic activity has reached over 1.6 billion dollars annually and generates in direct state tax and registration fee receipts $77.6 million dollars a year.

The present market appears to be basically a replacement one; approximately 85 percent of all snowmobiles are sold to those who already own at least one machine. This information is verified by A.C. Nielsen Research as interpreted by SnowGoer Magazine, which states, "The new buyer will likely come from present snowmobilers who do not own snowmobiles at the present time."

The past two sales years for snowmobiles have been most successful. The apparent reasons for two growth years back-to-back have been good snow conditions, a positive and growing economy, good positive dealer optimism, new areas of snowmobile use opportunities, and exceptional positive media coverage.

A November 9, 1979 Kiplinger Report states that "snowmobile sales are slumping...will be off ten to fifteen percent this season. Recession talk scares some buyers." Current government, industry, and users' comments followed: currently snow conditions are poor, a questionable economy, possible scarce energy availability, increased machine prices, and fewer available places to go. All these negatives are forging early unrest in the consumer's mind for purchasing snowmobiles in the 1979-1980 year.

Jerry Bassett, editor of SnowGoer Magazine states:

> "The manufacturers that I've talked to think that recession, rather than fuel, will be the biggest determining factor to snowmobile sales, usage, etc. Overall, the industry outlook seems extremely optimistic in light of everything. Manufacturing levels are virtually in a 'sold-out' situation. This, of course, is a reflection of building to dealer orders--plus a percentage of increase."

Demographics

The typical snowmobiler is married and has 2.8 children over ten years of age. His average age is between 25 and 49 years. He is a skilled, blue collar worker, whose family income averages between $15,000 and $20,000 per year. More than eight out of ten live in what would be considered rural areas. He lives where he can use his equipment on or directly from his homesite.

A study conducted by the Montana Department of Fish, Game and Parks shows that snowmobilers have a higher rate of participation in many other outdoor winter recreation activities than does the average Montanan. Of the 140,000 snowmobilers in Montana, one out of five also participates in downhill skiing, one out of seven in

Nordic skiing, one out of ten in snowshoeing, and more than one out of three in ice fishing. Almost half also participate in winter wildlife observation; approximately one out of five enjoys winter wildlife photography.

Snowmobile acceptance on public lands continues to increase, as depicted in a recently released national park policy statement:

> "Snowmobiles are viewed as a mode of transportation which provide an alternate form of access when snow cover interrupts normal vehicular access to a park. Snowmobiles can transport park users to and from areas which are set aside for non-motorized forms of winter recreation, such as ice fishing, snowshoeing and cross-country skiing."

Not only is this acceptance increasing with resource administrators, but with that positive image growth, enthusiast solidarity has grown through their active involvement in moving legislation and political action; they have sought improvement of the sport through making money available, park development, and most recently, private industry initiative to establish destination tourism opportunities.

Trends

Now that we have dissected a number of elements that make up the off-road motorcycle experience, let's piece back together what that information may be telling us. In other words, let's look at how we might perceive motorized vehicle trends.

*The future of the off-road experience will depend on availability of land for specific ORV activities, the severity of regulations, and the capability of enforcement of federal laws dealing with the environment, resource conflicts, and consumer protection.

*Because of diminishing energy availability and its increasing cost, ORV activities will soon move closer to the enthusiasts' residences, specifically in urban population areas.

*Federal land management agencies will gain greater control over regulation ORV use on public lands; they will support increasingly fewer off-road recreation opportunities and provide less financial support in land acquisitions and programs. This leaves states, local communities, and enthusiasts responsible for increased acquisition, planning, and managing of these facilities.

*As demand for facilities and services grows because of increased efforts by special interest groups of the recreating public, so will conflicts between motorized and non-motorized recreation activities. Better planning and management by state and local government to meet these demands will be needed. Those activities that financially support their needs will enjoy the rewards of their efforts. Those who don't contribute financially to their sport will be looking for places to participate.

*As public officials, enthusiasts, and non-enthusiasts are exposed to credible ORV people, information, and programs, adequate facilities will be identified, planned and developed. This will enable planners and managers to accommodate ORVs without environmental and user conflicts taking place.

*Motorcycle enthusiasts in the future will consider this equipment more seriously as transportation alternatives to the automobile; therefore, we will see increased purchase consideration of on-road bikes and dual-purpose motorcycles.

*Over the next decade we can expect to see shrinking of organized and semi-professional competition events, while those participating in recreational trail activities close to home will increasingly enjoy the out-of-doors in various forms.

*Unmanaged off-road play experiences on public lands will be increasingly constricted.

*Despite years of ORV research, lawmakers, resource planners and managers, and enforcement agencies know very little about the behavior, needs, and trends of this recreation group. During the first half of the 80's, researchers will be necessary by increased litigations over user and resource conflicts to take a more scientific approach to representing all outdoor recreators, as well as doing a better job in planning and managing public recreation lands for this activity.

Summary Brief

Stephen F. McCool seems to summarize what I want to say:

> "Despite years and years of research, we really know very little about the behavior and needs of snowmobilers and off-road recreation vehicle (ORV) users."

We won't solve the existing problems until we know who the motorized vehicle user is and what he wants from his sport.

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NATIONAL BOATING TRENDS[1]

Albert J. Marmo[2]

Abstract.--This paper examines the characteristics of recreational boats and boaters in the United States and the nature and extent of boating activities. The primary sources of the information presented are the United States Coast Guard's Nationwide Boating Surveys conducted in 1973 and 1976. The evidence indicates that boating is a major form of outdoor recreation with a broad base of participation which has experienced continuous growth.

INTRODUCTION

We do not know when the first boat was built. We do know that primitive men made dugout boats and canoes from large logs. The North American Indians built birchbark canoes, and the Eskimos built kayaks using seal skins. In other parts of the world, wicker and reed boats were common. While these early boats were built for work, they served as models for the "pleasure" or "recreational" craft that began to appear hundreds of years later.

Nobody really knows when recreational boating began. Little was recorded about it until the mid-1600's, when Charles II introduced yachting into England, according to the World Book Encyclopedia. The first English yacht club was founded in 1775. In the United States, recreational boating began in the early 1800's. The first yacht club was organized in New York City in 1844. In the early 1900's it is estimated that there were not more than 100,000 recreational boats in the entire United States.

The growth in boating hit its peak stride immediately after World War II.

Boating industry estimates reveal that there were approximately 2.4 million recreational boats in use in the United States in 1947. This number had doubled little more than five years later. There were various reasons for the rapid growth. As in other areas after World War II, technological advances in materials and building/assembly techniques permitted mass production of lightweight boats, and therefore brought down the cost of owning a boat. Improvement of the outboard motor, and new inventions such as electric starters made boat operation easier for many people, including women. Boat trailers were introduced for use with the fast growing automobile fleet. Boat financing and insurance were facilitated. Additionally, a wider variety of boats became available to meet buyer demands, and a market opened up for used boats, contributing to the perpetuation of this dynamic process. The population of the nation continued to increase, as did its mobility. Personal income was rising and lifestyles becoming more active. With longer vacations and more holidays, about one-third of the year became available to the average worker for leisure. Boating retail expenditures were estimated to be 1.23 billion dollars in 1955 for boats and equipment, fuel, insurance, maintenance and repairs, storage, docking, launching and club membership. These expenditures increased to $2.68 billion in 1965, $4.8 billion in 1975, and $7.5 billion in 1979 (MAREX 1979). There are currently over 2,600 boat manufacturers in the United States producing a myriad of boats, and about 6,000 marinas, boat yards and yacht clubs providing essential waterfront services.

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[1] Paper presented at the National Outdoor Recreation Trends Symposium, Durham NH, April 20-23, 1980.

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THE COAST GUARD'S RECREATIONAL BOATING SAFETY ROLE

Recreational Boating Safety Program

The United States Coast Guard's early involvement with recreational boating was primarily search and rescue after a mishap occurred. There was some involvement, however, in the preventive aspects of boating safety. Two Federal laws, passed in 1910 and 1918, dealt with motorboat regulation. The Coast Guard's role grew as boating grew. The Motorboat Act of 1940, which superseded the 1910 Act, expanded Coast Guard authority to regulate safety equipment such as life preservers and fire extinguishers on motorboats, also, it provided for penalties for reckless or negligent motorboat operation. The Federal Boating Act of 1958 provided for Federal and State cooperation in the interest of uniform boating laws and enforcement, making the states partners with the Federal Government in regulating recreational boating.

The Coast Guard was moved organizationally from the U. S. Treasury Department to the Department of Transportation in April 1967. There was growing recognition that boating was becoming a more diverse, complex and dynamic recreational activity. Congressional interest was running high. In his 1968 message to Congress on the American Consumer, President Johnson spoke to desired improvements in the area of recreational boating. All of this interest and review of boating safety led to passage of the Federal Boat Safety Act of 1971. This Act was intended by Congress to provide, in one statute, a comprehensive national program having three main objectives: cooperative Federal/State programs, improved boat design and construction, and, more flexible regulation of boat operators. This is the present basic authority for the Coast Guard's Recreational Boating Safety Program. The objective of the program is to reduce the risk of loss of life, personal injury and property damage associated with the use of recreational boats to provide boaters maximum safe use of the nation's waters. The program is broad-based, having direct impact on the states, manufacturers of boats and associated equipment, dealers, distributors, importers and the boating public.

The Need for Data

As the Recreational Boating Safety Program responsibilities grew and became more complex, the need for data for the Coast Guard to manage the program grew. The Coast Guard had been assigned the responsibility for promulgating regulations dealing with manufacturer requirements for safe boat construction. In order to determine where safety problems existed, more had to be known about the boat population. The Coast Guard had been collecting and publishing boating accident statistics since passage of the Federal Boating Act of 1958. Rates, not raw accident data, however, are needed to identify the relative magnitude of safety problems and to determine effectiveness of safety programs. The Coast Guard reports annually on the number of boats registered by the states. The registration or numbering data has limitations. Initially, only boats over ten horsepower had to be registered. Presently, all motorboats are registered. Although some states go beyond this, the large nonpowered fleet is essentially not covered in this system.

Education and enforcement are two other major elements of boating safety programs. Knowledge about the number, characteristics and activities of boaters is necessary to most effectively carry out these program responsibilities. The boat operator is the primary target of safety efforts.

Boating Surveys

A Coast Guard sponsored survey was conducted in the Fifth Coast Guard District (Maryland, North Carolina, Virginia and the District of Columbia) in 1969 to determine the feasibility of collecting boating information from the general public. The regional survey proved successful, and the telephone methodology utilized was later expanded to nationwide scope. Based on cost and time considerations and the capability for immediate interaction between interviewer and respondent, the telephone survey was chosen over personal interviews and mail survey mediums. The Coast Guard has sponsored two comprehensive surveys of the boating public. They were conducted during the months of April and May 1974 and covered 1973 boating activities, and April, May and June 1977 and covered 1976 boating activities. A stratified sampling plan was employed in the surveys. The Continental United States was partitioned into 400 geographical strata consisting of one or more counties. Two telephone central offices were selected at random for each stratum, resulting in 800 Primary Sampling Units. Within each central office, the final four digits of each telephone number to be dialed were then randomly selected by computer. For the 1976 survey, 28,261 households were contacted by a contractor. Of these, 6,018 were boating households, that is, one in which someone owned and/or operated one or more boats in 1976. There were 5,507 completed interviews of boating households.

The survey reports are compilations of answers by individuals, weighted at the completion of the interviewing period to give national estimates. These surveys were relatively modest attempts to gain some of the data required to carry out program responsibilities. We learn from each iteration and build upon this knowledge. The surveys have provided many valuable indications of the actual situation. While the Coast Guard surveys represent the most comprehensive national boating surveys known, there are other boating data developed principally by the boating industry, States and other Federal agencies. All provide valuable insights in the areas they were intended to address. This paper highlights much of the varied data on boats, boaters, and boating activities contained in the Coast Guard surveys. Unless otherwise noted, reference to "the survey" or "surveys" throughout the paper will mean the Coast Guard Nationwide Boating Surveys.

BOATING HOUSEHOLDS

Boat Operators per Household

The Coast Guard surveys looked at boating households. A boating household is defined as one in which at least one member actually operated a boat in the survey year. The surveys identified 10.6 million boating households in 1973 and 14.9 million in 1976. One out of every five households in the United States in 1976 had at least one boat operator. Table 1 shows numbers of operators per household. The share of households with only one operator decreased by about 10%. Households with two operators increased about 5%, and those with three or more operators increased by lesser amounts. This attests to a greater active family involvement in boating.

Boat Ownership

There were 7.3 million households in 1973 and 9.6 million in 1976 in which one or more recreational boats were owned. The latter survey indicated that the average number of boats per boat-owning household was 1.31, and 21.1% of boat owning households owned more than one boat. Table 2 shows the number of boats owned per household.

Table 1.--Boat operators per household (USCG 1978)

Operators per household	Year	Number of boating households	Percent of operator households
1	1973	5,329,000	52.1
	1976	6,373,000	42.8
2	1973	2,985,000	28.1
	1976	4,965,000	33.3
3	1973	1,119,000	10.6
	1976	1,800,000	12.1
4	1973	563,000	5.3
	1976	1,010,000	6.8
5	1973	258,000	2.4
	1976	409,000	2.7
6	1973	116,000	1.1
	1976	233,000	1.6
7 or more	1973	43,000	0.4
	1976	105,000	0.7
Total	1973	10,613,000	100.0
	1976	14,895,000	100.0

Table 2.--Household boat ownership (USCG 1978)

Number of boats owned	Year	Number of households	Percent of boat owning households	Percent change
1	1973	5,893,000	80.6	
	1976	7,559,000	78.9	28.2
2	1973	991,000	13.6	
	1976	1,377,000	14.4	38.9
3	1973	260,000	3.6	
	1976	390,000	4.1	50.0
4 or more	1973	165,000	2.2	
	1976	258,000	2.7	56.4

There is almost an even division in the way owners obtained their boats in 1976. According to the survey, approximately 48% bought their boats new, and a nearly equal number bought used boats. The remaining 4% built their own boats, some from kits.

Owners of 64.5% of new boats indicated that they had no intention of selling their boats, 5.5% had already sold the boat they used in 1976; the remaining boats were going to be kept anywhere from one month to more than five years. About 18% of the households that operated a boat in 1973, and 25% in 1976, rented a boat one or more times. In 1976, 9.2% of these households rented only one time, 5.3% twice, 5.6% three to five times, and 5.0% more than five times.

A national study of consumer attitudes toward recreational boating sponsored by the boating industry indicated that the

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median family size of boat owning household was 3.7 members (MAREX 1979).

Participation in Boating Activities

A major finding of the Outdoor Recreation Resources Review Commission's report to the President was that, "Water is a focal point of outdoor recreation - most people seeking outdoor recreation want water - to sit by, to swim and to fish in, to ski across, to dive under, and to run their boats over" (ORRRC 1962). Boating provides a platform for these and other water activities.

Members of boating households participated in one or more of a variety of boating activities. The basic proportions were similar between 1973 and 1976. The percent of households participating in water skiing showed the biggest increase, about 8%. Canoeing and whitewater activities were not separately broken out in the 1973 survey. Table 3 shows the households participating and the percent of time spent in the various boating activities in 1976.

Table 3.--Household participation in boating activities in 1976 (USCG 1978)

Activity	Households participating	Percent of households[a]	Percent of time spent
Pleasure cruising or sailing	9,312,000	62.5	31.5
Water skiing	5,617,000	37.7	13.7
Recreational fishing	11,422,000	76.7	44.7
Hunting	1,023,000	6.9	1.6
Racing	712,000	4.8	1.3
Commercial use - incl. fishing	391,000	2.6	.8
Whitewater canoeing	1,044,000	7.0	1.2
Other canoeing	2,359,000	15.8	4.6
Whitewater rafting	401,000	2.7	.3
Whitewater kayaking	161,000	1.1	.1
Other kayaking	289,000	1.9	.2
			100.0

[a] More than one response is possible for each of the 14,895,000 boating households.

It is clear from the survey that boating households are also active in recreational activities other than boating, including camping, fishing, hunting, athletic sports, and other outdoor recreation. Ninety-eight and one-half percent of boating operator households participated in one or more of these activities; 24% were active in all five. Recreational fishing had the highest percentage of participants, 88.4%.

BOATS

Number of Boats

The Coast Guard has been collecting data on numbered or registered boats since the passage of the Federal Boating Act of 1958. Only motorboats of 10 or more horsepower had to be numbered. Some states expanded boat numbering requirements in the intervening years. The Federal Boat Safety Act of 1971 required all motorboats to be registered. Some states have gone beyond this and register all watercraft. While the numbering data has limitations for trend analysis due to some variances in state numbering requirements, it does provide long term data regarding the basic composition of the motorboat fleet. A major thrust of the Nationwide Boating Survey was to provide data on the non-powered boats as well as powerboats. Over 8.1 million boats were numbered in 1978. The total number of all boats according to the 1976 survey was 12.75 million. The number of boats in the United States more than doubled in twenty years.

Characteristics of the Boat Population

Boats are generally characterized by a variety of factors, including type, length, hull material, engine type and horsepower.

Boat types. There are many terms used to identify boat type. Broad categories include open motorboats, cabin motorboats, rowboats, sailboats, inboard boats and outboard boats, for example. More specific classes include runabouts, cruisers, johnboats, and many others. A long list of specific boat types was used in the 1976 survey. Some people had problems placing their boats within the types. Many people simply refer to their small boat as a "fishing boat". Six major groupings of boat types are used in this paper. It is felt that these are most representative of the many boat types, and will be easily identifiable in the mind of the reader. There is no question that the small open boats, powered and nonpowered, comprise the lion's share of the boating fleet, about three-fourths.

The relative percentage share of each major grouping of boat types is as follows:

Rowboat, Johnboat, Skiff and other open, undecked lightweight boats	42%
Open Runabouts (decked and powered)	31%

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Sailboats (powered and nonpowered)	9%
Canoes and Kayaks	9%
Cabin Cruisers and Houseboats	5%
Inflatables, Rafts and Thrill Craft	4%

Boat length. The simplest and most direct measure of boat size is length. Classification of motorboats by length is established by Coast Guard regulations. These classes, set by the Motorboat Act of 1940, are:

Class A	Less than 16'
Class 1	16 to less than 26'
Class 2	26 to less than 40'
Class 3	40 to not more than 65'

Pleasure boats over 65' are documented by the Coast Guard. Numbered boat data provides a wealth of trend information regarding motorboat length. According to the 1978 data, 62% of the numbered motorboats are less than 16', 97% are less than 26' (USCG 1979). Table 4 shows the percent of boats by length class for the past ten years.

Table 4.--Motorboat length (USCG 1969-1978)

Length class	Percent by year						
	1978	1977	1976	1975	1973	1971	1969
Class A	62.22	63.68	64.31	65.58	65.20	64.53	66.28
Class 1	34.66	33.33	32.67	31.46	31.44	31.91	29.99
Class 2	2.76	2.66	2.69	2.65	3.03	3.19	3.37
Class 3	.36	.33	.33	.31	.33	.37	.36

The 1976 survey showed that 55% of all boats, powered and nonpowered, were under 16', and 96% under 26'. The 1973 survey contained similar findings. The following percentage share of boat type by length were computed by excluding the other or unspecified types reported in the 1976 survey. The rowboats, johnboats, skiffs, dinghys and other open lightweight boats accounted for 61.4% of boats under 16', sailboats 8.3%, canoes and kayaks 7.5% and open runabouts 19.9%. The open runabouts also accounted for 49% of boats between 16 and 25', open lightweight boats 18%, canoes and kayaks 12.7%, cabin cruisers and houseboats 8% and sailboats 7.2%. There were 418,000 boats between 26 and 39', consisting primarily of cabin cruisers, sailboats and houseboats. These types also account for most of the 78,000 boats over 40' in length.

Hull material. That material which constitutes the majority of the shell of the vessel is its hull construction. One of the clearest trends available is hull material preference. From the ten-year boat numbering data reflected in Table 5 it can readily be seen that fiberglass has become the predominant hull material, replacing wood. Aluminum has pretty much held its own.

Table 5.--Hull material (USCG 1969-1978)

Year	Hull material				
	Wood	Fiberglass	Aluminum	Steel	Other
1978	10.91%	47.28%	36.80%	1.43%	3.58%
1977	12.10%	45.66%	37.90%	1.47%	2.87%
1976	13.48%	44.54%	36.90%	1.47%	3.61%
1975	14.24%	43.07%	37.05%	1.68%	3.96%
1974	16.62%	41.48%	35.70%	2.32%	[illegible]
1973	18.66%	40.75%	34.58%	2.10%	3.91%
1972	23.08%	38.37%	33.03%	2.26%	3.26%
1971	25.67%	37.06%	31.64%	2.20%	3.43%
1970	29.04%	35.29%	30.27%	2.39%	3.01%
1969	31.38%	33.41%	29.30%	2.45%	3.46%

Fiberglass overtook wood as the most used hull material in 1969. New, more exotic and efficient hull shapes made fiberglass' advantage of molding-ease attractive. Fiberglass is also lighter, and offers ease of maintenance. Aluminum is now the second most used hull material. It has more strength in relation to weight than fiberglass, but it is more difficult to form. The two nationwide surveys bore out this trend in hull material for all boats. Fiberglass accounted for 44% of the hulls in 1976, 40% in 1973, aluminum 33% and 34%; and wood 10% and 15% in the two survey years. Most of the open lightweight boats, 61%, in 1976 were aluminum; 20% fiberglass. Fifty-three percent of the canoes were aluminum, 32% fiberglass. Sixty-six percent of the sailboats were fiberglass, 14% wood. Seventy percent of the open runabouts were fiberglass, 12% aluminum and 9% wood. Forty-seven percent of the cabin cruisers and houseboats were fiberglass, and 31% wood.

Looking at hull material by boat length, the 1976 survey showed that aluminum is the predominant material for the smallest boats, such as johnboats, canoes and skiffs, accounting for 47% of the boats under 16'. Fiberglass is second at 32%. Fiberglass accounted for 60% of the boats 16 to 25', aluminum 18%. Wood accounted for 47% of the boats 26 to 39', fiberglass 37%. Fiberglass accounted for 49% of the boats over 40', wood 42%.

Engine type. Marine engines are basically either inboard or outboard, jet, or inboard/outboard (outdrive). As the name implies, outboards are mounted outside the boat, on the transom. These are generally two-stroke engines designed specifically for boating. The inboards are built into the boat hull. These are usually four-stroke engines adapted from automotive engines. Inboard/outboards have the power unit inside the boat and the drive outside.

Most of the early recreational boats in the country were inboards or auxiliary-powered sailboats. The outboard was something of a novelty. The motors were bulky, heavy, hard to start, generally unreliable, and lacking in horsepower. The phenomenal growth in boating went along with the refinement of the outboard motor.

Coast Guard data on numbered boats for 1978 indicates that 84.75% are outboards and 15.25% are inboards, including inboard/outboards. The share of inboards has increased about 3% during the past ten years. The 1976 survey indicated that there were 7.8 million boats powered by outboards, including jets, 971,000 inboards, including jets, 844,000 inboard/outboards, and 123,000 other. Five and one-half percent of all boats had two or more engines for use with them. These engines were not necessarily mounted on the boat simultaneously.

Horsepower. The surveys showed, as one would expect, that the horsepower of the majority of open lightweight boats is under 30, as are the engines on auxiliary-powered sailboats. The majority of engines on the open runabouts and cabin cruisers were over 30 horsepower. A comparison of horsepower between the two survey years is made in Table 6.

Table 6.--Number of boats by horsepower (USCG 1978)

Year	Horsepower							
	None	1-5	6-10	11-30	31-50	51-100	Over 100	Total
1973	2166	1021	1276	1069	1420	1395	1257	9604
1976	304[illegible]	1208	1562	1293	1721	1867	2051	12750

Increases in the number of nonpowered sailboats and canoes accounted for the largest shares of the higher number of boats with no engines in 1976. The growth of boats in the higher horsepower categories is higher than in the lower categories. Boating industry data indicates that the average horsepower of motors sold has increased steadily. In 1969, it was 33.1 HP, and in 1979 it was 47.0 HP (MAREX 1979).

Boat age. The 1973 survey found that the average age of a boat was 8.0 years. The 1976 survey showed an average age of 8.3 years. Rowboats were the oldest, an average of 10 years. Cabin cruisers were next at 9.7 years, open runabouts 8.7 years and sailboats 8.5 years. The average age of wooden boats was 11.6 years in 1973, and 13.3 years in 1976; aluminum 7.6 in 1973 and 8.4 in 1976; and fiberglass 6.4 in 1973 and 7.2 in 1976. Fiberglass boats are expected to last about as long as aluminum boats, 12 to 20 years. Fiberglass is more easily repaired. Wood boats require more maintenance and their durability is highly dependent on the quality of wood used.

Insurance. Both surveys showed that about 62% of the boats were insured. In 1976, 41.3% of the boats that were insured had special boat insurance, 48.4% were covered under a homeowners policy and 10.3% had some other insurance.

BOAT OPERATOR PROFILE

The participation rate of the U. S. population in boating as determined by various recreation surveys have averaged about 25%. The 1976 Coast Guard survey identified 50.4 million boaters. It is safe to say that at least one in four Americans participate in boating. The boat operator is ultimately responsible for the safety of his craft and its passengers. He is therefore the primary target of boating safety education and enforcement programs. The surveys found that there were 1.8 operators per household in 1973 and 2.0 in 1976. The number of operators was 19.5 million in 1973 and 30.1 million in 1976. The various characteristics of these operators create a composite profile.

Age and Sex

The average age of all boat operators was 34 years in 1973 and 31.5 years in 1976. Table 7 profiles boat operators by age and sex for the two survey years. From the table it can be seen that the number of operators grew significantly. The number of female operators almost doubled, increasing by 89%. The number of male operators

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increased by 43%. In the 20 to 30 age groups, the increase in female operators was about 120%. Overall females made up 30% of the boat operator population in 1976, and 25% in 1973. The number of operators 30 years and younger relative to the total operators in each survey year increased from 49.4% to 55.9%. The trend is toward younger operators, and more female involvement. The industry-sponsored study of consumer attitudes toward recreational boating found that, "Somewhat contrary to the climate that many believe existed 10 or 20 years ago, women appeared to be generally supportive of boating as a recreational activity. Whether this stems from their recognition that boating has developed into an attractive and enjoyable family-centered recreational form, or is simply one of the corollaries of female liberation so evident in other cultural spheres, boating is no longer viewed as primarily a means of male gratification " (MAREX 1979). The Department of Commerce publication, "The Growth of Selected Leisure Industries", indicates that, "Sales of almost all types of recreational goods to women are an area of both current growth and future potential. Women of all ages and all socioeconomic levels are taking up a variety of sports, many for the first time " (DOC 1979). The publication also indicated that, "The surge in the young adult population which will continue for the next few years is favorable for most segments of the recreation industry, especially for those selling equipment for active sports and outdoor activities".

Table 7.--Boat operators by age and sex (USCG 1978)

Age	Year	Male	Female	Total
Under 12	1973 1976	324,000 561,000	99,000 365,000	423,000 926,000
12-15	1973 1976	956,000 1,695,000	415,000 721,000	1,371,000 2,416,000
16-19	1973 1976	1,561,000 2,660,000	779,000 1,284,000	2,340,000 3,944,000
20-25	1973 1976	2,082,000 3,626,000	839,000 1,857,000	2,921,000 5,483,000
26-30	1973 1976	1,960,000 2,742,000	604,000 1,315,000	2,564,000 4,057,000
31-40	1973 1976	2,553,000 3,702,000	933,000 1,753,000	3,486,000 5,455,000
41-50	1973 1976	2,604,000 3,021,000	627,000 1,118,000	3,231,000 4,139,000
51-60	1973 1976	1,562,000 1,954,000	357,000 513,000	1,919,000 2,467,000
Over 60	1973 1976	1,033,000 1,021,000	173,000 188,000	1,206,000 1,209,000
Total	1973 1976	14,635,000 20,982,000	4,826,000 9,114,000	19,461,000 30,096,000

Employment

The 1976 survey determined the labor force participation of primary boat operators over 16 years old. The primary operator is defined as that operator in a boating household who had the most operating time in the survey year. The employment status of primary operators as compared to the U. S. population is shown in Table 8. It shows that the percent of employed and full time student primary operators is much higher than the comparable segments of the U. S. population. The percent of houseworker primary operators is drastically lower. It is safe to assume that a great many are secondary operators, however.

Table 8.--Labor force participation of primary operators over 16 years old (USCG 1978)

Employment status	Primary operators		
	Number[a]	Percent of total	Percent census data[b]
Employed	11,162,000	77.6	59.0
Unemployed	270,000	1.9	4.7
Student, full time	1,599,000	11.1	5.3
Houseworker	248,000	1.7	22.3
Disabled (permanently)	92,000	0.6	3.6
Retired	1,025,000	7.1	5.1
Total asked	14,396,000	100.00	100.00

[a] Includes only those primary operators over 16 years old.

[b] Percent of U.S. population over 16 years old falling in each of these categories.

Job or Occupation

The 1976 survey obtained information on the job or occupation of employed primary operators over 16 years old. Table 9 shows that the percent of primary operators in major job categories is comparable to the percent of that segment of the U. S. population, with the exception of the Service Worker occupational field. Census data indicate that 13.8% of the employed U. S. population over 16 years old in 1976 were service workers, but only 6.4% of primary boat operators were. There are some significant differences within the major occupational groupings. For example, the professional and managerial white-collar workers account for 43.5% of the employed primary operators, while their share of the U. S. population is 25.6%. On the other hand, the clerical white-collar workers accounted for only 2.5% of the primary

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operators. Census data showed 17.8% falling in this category. Many of these are probably secondary boat operators in the household. The industry-sponsored survey of consumer attitudes found percentages in the major occupational groupings to be very close to those determined by the Coast Guard survey (MAREX 1979). The industry survey showed 52% of male boat owners to be white collar workers, 45% blue collar/farm workers and 9% retired/unemployed.

Table 9.--Job or occupation of primary operators (USCG 1978)

Job or occupation	Number[a]	Percent of total	Percent census data[b]
White-collar workers	5,400,000	52.8	49.8
Professional, technical	2,656,000	26.0	15.1
Manager or administrator (except farm)	1,791,000	17.5	10.5
Sales worker	701,000	6.8	6.4
Clerical or kindred worker	252,000	2.5	17.8
Blue-collar workers	3,701,000	36.2	33.0
Craftsman or kindred worker	1,708,000	16.7	12.9
Operator (except transport)	634,000	6.2	11.4
Operator of transport equipment	528,000	5.2	3.8
Laborer (except farm)	831,000	8.1	4.9
Farm workers	474,000	4.6	3.4
Farmer or farm manager	292,000	2.8	1.9
Farm laborer or foreman	182,000	1.8	1.5
Service worker	655,000	6.4	13.8
Total[c]	10,230,000	100.0	100.0

[a] Includes only those primary operators over 16 years old who are employed.

[b] Percent of U. S. population over 16 years old falling in these categories.

[c] Does not include Armed Services - 197,000 and 'Other' - 735,000; this was done for comparison purposes.

Schooling

A question regarding the highest grade or year of school completed by primary operators over 25 years old was asked in the 1976 survey. Table 10 portrays the results.

Primary operators have achieved a higher educational level than the comparable U. S. population. Over 50% have some education beyond high school. Almost one-third are college graduates. The industry consumer attitude survey had similar findings.

Table 10.--Highest grade or year of school completed (USCG 1978)

	Primary operators		
Grade or Year	Number[a]	Percent of total	Percent census data[b]
Less than 8th grade	251,000	2.3	11.6
Completed 8th grade	436,000	3.9	10.3
Some high school	1,165,000	10.4	15.6
High school graduate	3,492,000	31.3	36.2
Some post-high school; no college degree	2,643,000	23.7	12.4
College graduate, incl. graduate work	3,165,000	28.4	13.9
Total	11,152,000	100.0	100.0

[a] Includes only those primary operators who gave their age and were over 25 years old.

[b] Percent of U. S. population over 25 years having completed these categories.

Income

The 1976 survey did not include any question regarding income. The 1973 survey provided the following household income data: 28.5% under $10,000 per year, 32.9% ten to $15,000, 18.4% fifteen to $20,000, 8.6% twenty to $25,000, and 11.6% over $25,000 per year. Nearly 62% of the boating households had income of less than $15,000 per year in 1973. The boating households had slightly higher percentages in the income categories over $10,000 as compared to the Census data for total U. S. households. The 1979 industry consumer attitude survey found a median income of $23,500 for boat owning households.

Boat Operating Experience

The 1973 survey found that 10.2% of primary boat operators had under 20 hours of operating experience. In 1976, 15% had under 20 hours, 23.3% had 21-100 hours, 26.0% had 101-500 hours, and 35.7% had over 500 hours. There was a slight downward trend in boat operating experience.

BOAT USE

Boating Exposure

Determination of the amount of time boats are used is necessary to assess whether any particular types of boats are generally less safe than others.

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Therefore, a major purpose of the surveys was to develop these estimates. Each boat owner was asked the number of months the boat was used during the survey year, the average number of outings per month, and the hourly length of an average outing.

Months used. There were 1,428,000, or 11.2%, of the 12,750,000 boats estimated by the 1976 survey not used at all during 1976. Of those that were used, 35% were used up to three months of the year, 79% were used six months or less. No particular type of boat stood out as to monthly use patterns.

Of the boats that were used during 1976, 11.5% were used only one time per month and 17.3% twice. Almost 70% of the boats were used six or less times. Seventeen percent were used more than ten times.

Outing length. The average number of hours per outing of boats used in 1976 was 5.3. Forty-six percent of the boat outings were from two to four hours, 22.3% were over six hours.

Boat hours. Based upon the monthly use and length of outing data, the number of boat hours was computed. The total number of boat hours in 1976 was 2.26 billion, and 1.55 billion in 1973. The exposure per boat went from 190 hours in 1973 to 199 hours in 1976. The runabout accounted for the largest single boat type percent share of boat exposure hours, 26.7% in 1976. The various types of open lightweight boats with motors accounted for 29.9%, and without motors 3.3%. Sailboats without motors accounted for 7.1%, and with motors 3.3%. Cabin cruisers accounted for 7.7% of the 1976 boat exposure hours.

Boats with motors accounted for 84% of the 1976 boat exposure hours, and 87% of the 1973 boat exposure hours. Boats without motors accounted for the remaining 16% of the boat exposure hours in 1976, and 13% in 1973. The largest single change between 1973 and 1976 in the boat type categories that are directly comparable is a 3% increase in the sailboat without motor exposure hours.

Passenger hours. The average number of passengers on board boats was obtained through the surveys. These data were used to convert boat exposure data to passenger exposure information. There were 7.6 billion passenger hours in 1976. This is about 3 billion more than in 1973, when approximately 3 million boats less operated. According to the 1973 survey data there were 3 passengers, on the average, for every hour of boat operation. This ratio increased to 3.4 in 1976.

The types of boats accounting for the greatest shares of passenger exposure hours in 1976 include: runabouts 27.5%, open lightweight boats 23.0%, cabin cruisers 13.8%, and sailboats 9.8%. Houseboats averaged the most passengers carried per boat, 6.6, however this type of boat only accounted for 1.7% of the total passenger exposure. Cabin cruisers averaged 6.1 passengers, and sailboats with motors 4.8.

Trailering of Boats

Trailering or carrying his boat gives the boater the flexibility to choose a boating area suitable to his purposes. The range and variety of boating locations afforded by trailering is appealing to a great number of boaters as evidenced by the 1976 survey data. The survey indicated that 62.7% of the boats, about 8 million, were trailered or carried to a launching site. Boats under 16 feet accounted for 58.8% of the boats trailered, and those 16 to 25 feet accounted for 40.6%. As to type of boat, 66.7% of the runabouts, 66% of the open lightweight boats, 46.4% of the sailboats, and 34% of the cabin cruisers are trailered or carried. Survey respondents were asked the number of miles, round trip, they normally trailered or carried their boat on each outing. The results were that 29.3% trailered less than 10 miles, 35.9% between 11 and 50 miles, 17.1% between 51 and 100 miles, and 17.7% over 100 miles. The effects of fuel prices and availability on the distances boats are trailered will be an interesting trend to observe.

BOATING ACCIDENTS

Boating is fun. Unfortunately, the fun in boating can be marred by the consequences of a boating accident. The unfamiliarity of the water environment which makes boating an enjoyable break from the daily routine, also poses a danger to those who may be unaware of the possible hazards. The Coast Guard has published annually for 20 years statistical information gleaned from boating accident reports received. This information, together with the boating survey and any other pertinent data available, is analyzed to determine safety problem areas and program effectiveness.

The reporting of fatalities is within the 95 to 100% range. Therefore, fatality data is the most complete and reliable source of boating safety trend data. The fatality rate per 100,000 boats is one overall indicator of boating safety. The rate of fatalities per 100,000 boats has been cut in half over the last ten years, going from 19.6 in 1968 to 9.4 in 1978. The actual number of boating fatalities in 1978 was 1,321. The highest rate computed was 21.4 fatalities per 100,000 boats in 1965. The major types of boating casualties are capsizings, which accounted for 35.5% of the boating fatalities in 1978; falls overboard, which accounted for 27.2% of the fatalities; collisions, accounting for 44.1% of the reported injuries and 35.6% of the reported property damage; and fires and explosions, accounting for 28.4% of the reported property damage.

Boats Involved

The prevalent characteristics of the boats involved in the largest share of the fatalities are generally not surprising having looked at the characteristics of all boats through the survey data. The percentages included in Table 11 reflect the number of fatalities in 1976 related to the particular boat characteristics listed. Factors referred to as "unknown" were eliminated. Only those characteristics accounting for at least 20% of their particular category were included in the table with the exception of the manual propulsion item which in 1976 was under 20%, but is included for comparative purposes.

Table 11.--1976 Fatalities by boat characteristics (USCG 1977)

Primary boat characteristics	Percent of fatalities
Type	
Open motorboat	50.6
Length	
Less than 16 feet	58.2
16 to 26 feet	35.8
Hull material	
Aluminum	40.7
Fiberglass	38.9
Propulsion	
Outboard	57.7
Manual (oars, paddle)	19.0
Horsepower	
No engine	30.3
10 HP or less	20.7
Over 75 HP	21.6
Age	
Under 5 years	54.0
Over 10 years	22.5

Boat Operators

The following operator information was computed based upon those descriptors which were specified in the 1976 reports of fatalities. The age of the operator involved in 28.7% of the fatalities was 25 or under, 50.9% between 26 and 50 and 20.4% over 50 years. The 1976 survey indicated that the number of operators 25 or under was 13.7% higher than the number involved in fatalities in 1976, the 26 to 50 age category was 5.5% lower, and the over 50 years category was 8.2% lower. As for experience, 19.9% of the fatalities in 1976 involved operators with less than 20 hours of operating experience, 27.9% with 20 to 100 hours, 23.6% with 100 to 500 hours, and 28.6% with over 500 hours. These percentages are within five percentage points of the comparable categories of operator experience in the 1976 survey.

Exposure

Going a step farther in accident analysis, we can look at the fatalities in terms of boater exposure. Fatalities per million passenger hours dropped from .38 in 1973 to .17 in 1976. Based on the boater exposure by boat type data in the 1976 survey and the 1976 boating fatality statistics, fatality rates by boat type were computed. It was found that the open lightweight boats without motor topped the list with about 1.8 fatalities per million passenger hours. These are the types of boats on which most of the falls overboard and capsizings occur, and these types of casualties account for the greatest share of the fatalities.

Comment

These are but brief examples of how the data collected by the Coast Guard are used. Like virtually all data, these data have limitations. Reliance on individual reporting and availability of sufficient funds for more extensive data gathering are two constraints. We continuously strive to improve the information base using experience gained in collecting and working with the data. Other valuable sources of data are sought out and considered in the interest of developing the most representative picture of boating in the United States. The picture that has emerged is one of a continuously growing form of outdoor recreation which enjoys a broad base of participation.

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TRENDS IN RIVER RECREATION[1]

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Abstract.—Participation in river recreation has been expanding at a rapid rate. This paper reviews selected phenomenon associated with the growing popularity of rivers as recreational resources. The paper will: (1) describe the river recreation resource (the supply situation); (2) present selected indicators of increased river recreation use (the demand situation); (3) present demographic and experience profiles of selected river recreation users; (4) describe some of the environmental and social impacts occurring from increases in river recreation activity; (5) present selected management strategies used to cope with impacts; and (6) speculate some future trends in river recreation.

Interest in rivers for recreation is expanding rapidly. All types of rivers--urban and rural, placid and fast flowing, polluted and clean--are being used increasingly for recreation. And, people are using rivers for a wider variety of leisure activities. Besides water activities such as swimming, fishing, boating, kayaking, and waterfowl hunting, other activities, such as camping, hiking, picnicking and relaxing are often pursued with rivers as an important backdrop.

Rivers used for recreational purposes vary in length and size, and traverse private as well as public lands. Management responsibility is often fragmented, or altogether absent. Recreation use often coexists (sometimes controversially) with nonrecreation uses such as hydroelectric power production, irrigation, timber harvesting, mining, grazing, and nonrecreational commercial traffic. Many of America's rivers, however, offer recreation in a relatively natural or naturally-appearing setting where there are few human-made features and the chance for solitude is fairly high.

The purpose of this paper is to assemble information on trends in river recreation, especially (1) supply, (2) demand, (3) who users are and what they are like, (4) environmental and social impacts, (5) present management techniques, and (6) the future. We focus on those rivers with frequent canoeing, rafting, innertubing, motorboating, fishing, and a variety of shore uses such as hiking, camping, and picnicking. We did not include recreation on large rivers having substantial commercial traffic and large pleasure craft, such as the Lower Mississippi, Ohio, Hudson, Sacramento, and Columbia Rivers.

Despite the dramatic growth in the amount and variety of literature about river recreation (Anderson *et al.* 1978) in the last half decade, as well as interest by public administrators, planners, managers, researchers, and the public, there is little information on trends *per se*. Thus, the paper is intended to assemble much of what is known on this subject.

SUPPLY OF RIVER RECREATION

There are more than 3.2 million linear miles of rivers and streams in the continental United States (Water Resources Council 1968). Alaska has another 365,000 miles. It is difficult to delineate those portions that are utilized for recreation. We do know, however, that most rivers and streams are too small to support on-water recreational activities. For example, only about 700 streams with a combined length of 100,000 miles have a minimum flow of at least 500 cubic feet per second--the minimum flow desirable for on-water recreational activities (Water Resources Council 1968).

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Obviously, not all of this is available for recreation. Much is exploited for nonrecreational uses, resulting in pollution or reduced flow. Other rivers are not readily accessible to the public. Some are far removed from population centers, and others, although near or in densely populated urban areas, are virtually inaccessible because they are bordered by private land, or access is limited, or both.

Because of the lack of "hard" data about the supply of river recreation resources nationwide, the Heritage Conservation and Recreation Service (HCRS) is conducting an inventory of rivers to provide a reliable data base for the nation's river resource. The inventory will also identify the highest quality rivers for possible consideration under federal, state, or local river preservation programs. The national inventory is being conducted in two phases. The first phase focuses on the natural qualities of rivers. All river segments over 25 miles in length are screened against various criteria, mostly factors relating to the extent of human intrusions. The second phase began in 1979 and will identify rivers greater than 5 miles in length with high recreation and aesthetic values that are readily accessible to urban areas.

Most national information comes from rivers specially designated under federal and state programs. The federal Wild and Scenic Rivers System preserves many of the nation's outstanding free-flowing rivers. The system was established in 1968 with eight rivers, and identified 27 additional rivers to be studied for inclusion in the system. Growth in the system was slow; a total of 15 rivers were authorized by 1975. Then between 1976 and 1978 13 additional rivers were authorized as components of the system. Currently the system contains 28 rivers or river segments, totaling 2,318 miles (Table 1). An additional 48 rivers have been designated for study as potential components. Other rivers or river segments including the Current and Jack Fork Rivers in Missouri and the Buffalo River in Arkansas have been designated National Scenic Riverways.

In addition to federal efforts to preserve river resources, 23 States have established river preservation programs (Table 2). The first statewide program was established in Wisconsin in 1965. States passing legislation jumped from 3 in 1968 to 19 in 1972. Since 1975 no new State legislated programs have been implemented, but there are indicators that 40 States are active in river protection efforts (Alling and Ditton 1979). To date, 19 States have designated over 200 rivers or river segments, totaling nearly 6,000 miles. Unlike the federal program, which is uniform in intent and purpose, state programs range from active, dynamic planning to merely token efforts having minimal adminstrative responsibilities.

DEMAND FOR RIVER RECREATION

An extensive national survey by the U. S. Coast Guard revealed that the number of kayaks and nonmotorized canoes owned by Americans has grown disproportionately faster than any other type of craft (U. S. Department of Transportation 1978). Between 1973 and 1976, for example, there was a 68 percent increase in the number of canoes and a remarkable 107 percent increase in the number of kayaks. Presently there are an estimated 1 million canoes and 90,000 kayaks nationwide. In Minnesota the growth in canoe and kayak ownership is particularly dramatic. Between 1972 and 1978, the estimated state population increased 3 percent; during the same period the number of canoes and kayaks registered with the Department of Natural Resources increased 143 percent, from 41,675 to 101,322 (State of Minnesota 1979).

There are substantial regional differences in canoe and kayak ownership patterns in the contiguous 48 States. Data from the National Boating Survey in 1973 (U. S. Department of Transportation 1974) and population figures from the same year reveal that the number of canoes owned in the New England and Lake States per unit population is higher than average, while canoes per unit population in the Gulf Coast, East Central, and West Coast regions is lower than average. Kayak ownership per unit population in the New England, Mid-Atlantic, and West Coast regions is high compared to the average, while kayak ownership per unit population in the Gulf Coast, East Central, Midwest/Mountain, and Great Lakes regions is lower.

Some of the most striking ownership patterns are in the New England, Great Lakes, and West Coast regions. New England accounts for roughly 15 percent of the population but 26 percent of the canoe ownership and 29 percent of the kayak ownership. The Great Lakes region has 30 percent of the canoes but only 5 percent of the kayaks, while making up 21 percent of the population. Conversely, the West Coast region, with 13 percent of the population, has only 4 percent of the canoes but 36 percent of the kayaks.

All data, sketchy as they are, show a steady upward trend in river recreation from the late 1960's on (Table 3). On many rivers the number of visitors increased by as much as 20, 50, or even 100 percent per year. Rivers

Table 1.-- River mileage classifications for components of the national wild and scenic rivers system as of December 1979[a]

Rivers in the national system	Designated	Administering agency	Wild	Scenic	Recreational	Total
	Year		Miles			
1. Middle Fork Clearwater, Idaho	1968	USFS	54	—	131	185
2. Eleven Point, Missouri	1968	USFS	—	44.4	—	44.4
3. Feather, California	1968	USFS	32.9	9.7	50.4	93
4. Rio Grande, New Mexico		BLM/USFS	51.75	—	1	52.75
(Rio Grande Mgt. by Agency)		(BLM)	(43.90)	—	(0.25)	(44.15)
	1968	(USFS)	(7.85)	—	(0.75)	(8.60)
5. Rogue, Oregon		BLM/USFS	33	7.5	44	84.5
(Rogue Mgt. by Agency)		(BLM)	(20)	—	(27)	(47)
	1968	(USFS)	(13)	(7.5)	(17)	(37.5)
6. St. Croix, Minnesota and Wisconsin	1968	NPS/FS	—	181	19	200
7. Middle Fork Salmon, Idaho	1968	USFS	103	—	1	104
8. Wolf, Wisconsin	1968	NPS	—	25	—	25
9. Allagash Wilderness Waterway, Maine	1970	State of Maine	95	—	—	95
10. Lower St. Croix, Minnesota and Wisconsin	1972	NPS	—	12	15	27
11. Little Miami, Ohio	1973	State of Ohio	—	18	48	66
12. Chattooga, N.C., S.C., and GA.	1974	USFS	39.8	2.5	14.6	56.9
13. Little Beaver, Ohio	1975	State of Ohio	—	33	—	33
14. Snake, Idaho and Oregon	1975	USFS	32.5	34.4	—	66.9
15. Rapid, Idaho	1975	USFS	24	—	—	24
16. New, North Carolina	1976	State of NC	—	26.5	—	26.5
17. Lower St. Croix, Minnesota and Wisconsin	1976	States of MN, WI	—	—	25	25
18. Missouri, Montana	1976	BLM	72	18	59	149
19. Flathead, Montana	1976	FS/NPS	97.9	40.7	80.4	219
20. Obed, Tennessee	1976	NPS/State of TN	45.2	—	—	45.2
21. Pere Marquette, Michigan	1978	USFS	—	66.4	—	66.4
22. Rio Grande, Texas	1978	NPS	95.2	96	—	191.2
23. Skagit, Washington	1978	USFS	—	99	58.5	157.5
24. Upper Delaware, New York and Pennsylvania	1978	NPS	—	25.1	50.3	75.4
25. Middle Delaware, New York, PA and NJ	1978	NPS	—	35	—	35
26. American (North Fork), California	1978	USFS/BLM	38.3	—	—	38.3
		(USFS)	(26.3)			
		(BLM)	(12)			
27. Missouri, Nebraska, and South Dakota	1978	Interior/Corps of Engineers	—	—	59	59
28. Saint Joe, Idaho	1978	USFS	26.6	--	46.2	72.8
		TOTAL	841.15	774.2	702.4	2,317.75

[a] U.S. Department of the Interior, Heritage Conservation and Recreation Service.

Table 2.—Twenty-three state river protection programs[a]

State	Year legislation enacted	Rivers designated to date	River miles designated to date	Rivers considered for future designation	Ownership of majority of corridor	Protective features of the program: Prohibit instream modifications	Protective features of the program: Land use controls	Protective features of the program: Management of use and users
California	1972	9	1,030	N/A	Both	Yes	Yes	Yes
Georgia	1969	0	0	115	N/A	Yes	Yes	Yes
Indiana	1973	2	59	N/A	Private	Yes	Yes	Yes
Iowa	1970	1	80	0	Private	No	No	No
Kentucky	1972	8	110	0	Public	Yes	Yes	Yes
Louisiana	1970	43	N/A	N/A	Private	Yes	No	Yes
Maryland	1969	9	441	0	Private	Yes	Yes	No
Massachusetts	1971	0	0	1	Private	Yes	Yes	Yes
Michigan	1970	6	641	25	Private	Yes	Yes	No
Minnesota	1973	4	200	14	Private	No	Yes	Yes
New York	1972	70	1,214	60	Private	Yes	Yes	Yes
North Carolina	1971	2	36	4	Both	Yes	Yes	Yes
North Dakota	1975	1	213	3	Private	Yes	No	No
Ohio	1968	8	415	4	Private	Yes	Yes	Yes
Oklahoma	1969	5	151	0	Private	Yes	No	No
Oregon	1970	8	523	6	50/50	Yes	Yes	Yes
Pennsylvania	1972	0	0	112	Private	Yes	No	Yes
South Carolina	1974	2	60	20	Private	N/A	N/A	N/A
South Dakota	1972	0	0	2	Private	Yes	Yes	Yes
Tennessee	1968	11	350	0	Private	Yes	Yes	Yes
Virginia	1970	2	53	35	Private	Yes	No	Yes
West Virginia	1969	5	205	0	Private	Yes	No	No
Wisconsin	1965	3	91	0	50/50	Yes	Yes	Yes
	TOTAL	199	5,872	401				

[a]Alling and Ditton (1979).

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Table 3.--Recreation use, in visits, of selected U.S. rivers by region (1965-1979)[a]

River by Region	Number of visits for years data have been collected[b]														
	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
EAST															
Allagash River (Maine)	—	4,141	4,539	3,789	4,820	5,460	6,345	8,260	8,337	7,477	9,447	8,619	9,278	9,734	8,932
Youghiogheny River (Pa.)	—	—	—	—	—	17,000	—	—	—	80,000	—	—	—	—	—
St. John's River (Maine)	—	—	—	—	—	—	—	—	—	—	1,151	1,294	2,408	2,639	2,971
MIDWEST															
Buffalo River (Ark.)	—	—	—	—	—	—	—	—	—	15,505	18,748	—	—	—	—
Current River, Ozark Nat. Scenic Riverway (Mo-Ark)	—	40,000	—	—	—	—	—	—	—	164,500	202,857	—	242,000	—	—
Eleven Point River (Mo.)	—	—	—	—	—	—	—	—	—	—	—	—	10,528	11,128	9,906
Pine River (Mich.)	—	13,000	—	—	—	—	50,000	—	64,000	—	80,000	90,000	96,000	76,341	69,836
Upper Iowa River (Iowa)	—	—	—	—	—	—	—	1,464	1,795	—	—	—	—	—	—
St. Croix River, Upper (Minn-Wis)	—	—	—	—	—	—	—	—	—	—	—	—	—	117,000	118,000
St. Croix River, Lower (Minn-Wis)	—	—	—	—	—	356,000	—	—	—	—	—	—	832,649	—	—
WEST															
Colorado River, Cataract Canyon, Canyonlands Nat. Pk. (Utah)	—	—	—	—	585	889	1,670	2,439	4,422	4,396	4,042	4,869	4,809	5,595	5,786
Colorado River, Grand Canyon Nat. Pk. (Ariz.)	547	1,067	2,099	3,609	6,019	9,935	10,885	16,432	15,219	14,253	14,305	13,912	11,830	14,356	14,576
Colorado River, Westwater Canyon, (Colo.-Utah)	—	—	—	—	—	318	—	500	—	—	—	—	4,496	6,586	7,181
Delta River, (Alaska)	—	—	—	—	—	—	—	356	—	—	888	800	1,500	1,550	2,511
Gulkana River, (Alaska)	—	—	—	—	—	—	—	—	—	—	500	423	450	500	607

(Continued)

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Table 3.--Continued

Green and Yampa Rivers Dinosaur Nat. Monuments (Colo.-Utah)	—	—	2,493	3,755	5,740	9,762	14,145	17,159	16,739	12,874	13,710	13,580	13,114	14,559	12,803
Green River, Desolation Canyon, (Utah)	—	—	—	—	—	1,600	—	—	—	—	—	5,189	4,946	5,941	5,793
Owyhee (Oregon)	—	—	—	—	—	—	—	—	—	482	557	738	80	989	1,483
Rio Grande River, Big Bend Nat. Pk. (Texas-Mexico)	926	1,540	2,741	2,389	3,996	4,006	4,478	4,421	4,850	7,651	6,069	4,823	5,421	4,157	3,178
Rogue River (Oregon)	—	—	—	—	—	—	2,800	4,800	5,885	7,210	8,855	10,836	—	—	—
Salmon River, Middle Fork (Idaho)	1,260	1,260	1,299	1,396	1,624	3,028	3,250	3,972	4,372	4,036	4,682	5,964	3,767	6,904	7,026
Salmon River, Lower Main (Idaho)	—	—	—	—	—	—	—	—	4,003	3,057	2,477	3,955	3,817	4,569	6,089
Salmon River, Upper Main (Idaho)	—	—	—	—	—	—	—	—	2,593	2,931	3,201	—	—	—	—
Selway River (Idaho)	—	—	—	—	—	46	194	406	419	439	345	350	359	441	629
Snake River, Grand Teton Nat. Pk. (Wyo.)	—	18,000	—	—	—	—	—	71,256	73,885	51,906	83,096	77,412	81,210	87,925	—
Snake River, Hell's Canyon (Ore.-Idaho)	—	—	—	—	—	—	—	—	1,184	1,485	1,797	2,118	2,474	3,213	4,276
Snake River, Grand Canyon (Wyo.)	—	—	—	—	—	—	—	—	27,364	30,463	43,576	55,739	60,914	68,959	—
Stanislaus River (Calif.)	—	—	—	—	—	—	—	25,000	31,807	29,180	—	—	—	34,683	—
Toulumne River (Calif.)	—	—	—	—	—	—	—	—	—	—	2,700	596	0	3,330	3,550
SOUTH															
Chattooga River (So. Carolina, Georgia)	—	—	100	100	300	800	800	7,600	21,000	28,800	22,800	15,200	17,400	29,000	28,800
Everglades Canoe Trails (Fla.)	—	—	—	—	—	—	—	—	4,000	5,000	—	—	—	—	—
Nantahala River (No. Carolina)	—	—	—	—	—	—	—	1,000	3,000	4,000	—	—	—	—	—
Okefenokee Canoe Trails (Georgia)	—	—	—	—	—	—	300	500	800	2,000	—	—	—	—	—
Hiwassee (Tennessee)	—	—	—	—	—	800	1,200	—	2,000	3,000	—	—	—	—	120,000
Ocoee (Tennessee)	—	—	—	—	—	—	—	—	—	—	—	—	7,000	23,000	40,000

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[a] Expanded from Hecock (1977).

[b] Data from various published and unpublished sources.

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showing the greatest increases are nearest large population centers in the Midwest, East, and far West.

The upward trend in river recreation has led public agencies to restrict use on some rivers. Rivers with some use restrictions increased from 8 in 1972 to 38 in 1977 (McCool et al. 1977, Utter 1979). As a result use on these rivers has been stable or has even declined (Table 3). We suspect, however, that measures to limit use, while effective at their intended locales, have caused corresponding dramatic increases on other rivers where no restrictions yet exist.

Closely associated with the trend toward greater regulation of use on rivers has been the trend toward potential users being denied access to rivers (Grimm and Wyman 1974). On many rivers the number of persons applying for permits has been four to five times the number receiving them. For instance, on the Selway River in 1978, only 62 of the 703 persons applying for a permit through a lottery system actually were awarded one--a 9 percent rate of success.

Growing membership in river-oriented organizations, sponsored river events, and the circulation of magazines oriented to river recreation all point to an accelerated interest in rivers for recreation. For example, membership in the American Canoe Association was 1,000 in 1965 and is expected to exceed 5,000 during 1980. The number of Sierra Club river outings has more than doubled since 1969, up to 47 in 1978. Circulation of Canoe Magazine, which began publication in 1973, jumped from 5,000 in that year to over 45,000 in 1979.

Commercial enterprises in river recreation have correspondingly increased. For example, the Grumman Rent-A-Canoe directories (Grumman 1973, 1978) show canoe rental agencies listed increased 115 percent between 1973 and 1978 (from 427 to 917). Enterprises and individuals that outfit or lead river trips also have increased. The newly formed National Association of Canoe Liveries and Outfitters report 168 businesses in 33 States in their 1979 directory. They expect the number of businesses to at least double in the 1980 directory (Couch 1979). In 1962, the Western River Guide Association counted only 15 members. By 1979, the number of members had risen to 1,374. The companion Eastern Professional River Outfitters Association was founded in 1976 with 14 members. Three years later the organization had more than doubled to 29.

Full-time lobbyists for several conservation organizations with a vital interest in river protection as well as recreation use have been established. The American Rivers Conservation Council, for example, was founded in 1973, and is based in Washington, D. C. A major national lobby, they call for widespread river preservation programs and for informing a variety of interested persons about river planning, management, and conservation.

The growing number of regional, national, and international conferences and symposia focusing specifically on river recreation is another indicator of the widespread interest in river resources. During the 1970s, no less than 10 major gatherings focused on such topics as river planning and management, the impact of proposed dam construction on river resources, in-stream flow requirements for recreation and other uses, research on river recreation, and public programs to preserve river environments.

The following factors should be influential in keeping demand high: the crowded conditions associated with other recreation activities; the reduction in pollution on many waterways (especially in and near urban areas) resulting from legislation such as the Water Quality Act of 1965; the increased emphasis on physical fitness; a surge in interest by people in challenging, even dangerous recreation activities; the growing number of books, magazines, films, advertisements by commercial river outfitters, and television programs on the out-of-doors and rivers in particular; growth in the number of commercial outfitters and boat liveries that provide relatively inexpensive services to a broadening, inexperienced segment of society; and, new technology in outdoor recreation equipment and related industries (Lime 1977a).

THE RIVER RECREATIONISTS: WHO ARE THEY?

As river recreation has increased so have studies of river recreationists to determine their social and economic makeup, why they visit rivers, reactions to encountering various amounts and types of river users, opinions of specific river management practices, etc. (Anderson et al. 1978). Unfortunately, most studies of river use and users have been one-time efforts without follow-up inquiry. And, most have been case studies of short duration using different survey techniques (Anderson et al. 1978). However, there is enough evidence from various studies to make some tentative observations about these recreationists. Generally, river recreationists are atypical of the population as a whole, as frequently reported in analyses of other outdoor recreationists. However, there are characteristics of river recreationists that distinguish them from other outdoor recreationists.

River recreationists here are defined as people who travel on rivers or streams in rafts, canoes, kayaks, innertubes, or relatively small motorboats, but not large motorized watercraft or sailboats. Fishermen, shore users, and riparian landowners are also excluded.

Most studies have shown that river recreationists are predominantly young (Hecock 1977). Data from the 1978 phase of the Forest Service's National River Recreation Study[3] revealed that 67 percent of the river recreationists surveyed were between the ages of 20 and 40, and 45 percent were between 20 and 30 years of age. Similar distributions are found in other studies of river recreationists (Bassett et al. 1972, Heberlein and Vaske 1977, Seitz 1974, Solomon and Hansen 1972).

Certain ages are associated with certain craft. Tubing enthusiasts tend to be younger than other river recreationists. On the Apple River in Wisconsin, for example, more than two-thirds of the tubers surveyed were under 25 years of age (Shaffer and McCool 1973). Youthfulness among tubers is further exemplified from a study on the Bois Brule River, also in Wisconsin (Heberlein and Vaske 1977). At least 30 percent of the tubers were judged to be under 14. In contrast, youthfulness is not a dominant characteristic of whitewater enthusiasts, perhaps because that activity requires considerable investment in equipment and/or commercial services (Hecock 1977). On the Colorado River in the Grand Canyon, for example, the average age of rafters was 36 (Shelby 1975). Similar patterns have been reported from other studies (Howard et al. 1976, Schreyer and Nielson 1978).

As with many outdoor recreational pursuits, river recreationists are often students and more educated than average. Most past age 18 have completed several years of formal training beyond high school. Half of those over 18 years in the National River Study (1978 data), for instance, had completed at least 4 years of post high school training. Similarly, Schreyer and Nielson (1978) found that about a third of the visitors surveyed on two whitewater rivers in Utah had completed more than 4 years of training beyond high school. And, Leatherberry (1979), found both canoe and kayak owners in Minnesota, on the average, had completed more than 2.5 years training after high school.

More river recreationists are professionals or white-collar workers than average and have higher incomes (Boster 1972, Heberlein and Vaske 1977, Howard et al. 1976, Leatherberry 1979, Pfister and Frenkel 1974, Seitz 1974, Solomon and Hansen 1972). The National Recreation Survey (Bureau of Outdoor Recreation 1973) found that canoeists have higher incomes than most other outdoor recreationists and the population as a whole. Leatherberry (1979) in Minnesota found that a fifth of the State's households had annual incomes in excess of $25,000 in 1976 while about a third of the canoe and kayak owner families had incomes exceeding that figure.

In general, river recreationists begin participating at a later age than others such as hunters, fishermen, and wilderness visitors (Hendee et al. 1968, Klessig and Hale 1972). For example, canoe owners in Minnesota, on the average, went on their first canoe outing when they were 20 years old; kayak owners were 26 (Leatherberry, 1979).

River recreationists are unique in that so many are newcomers to a given river and to river recreation in general. In Hecock's review (1977) he found no studies where first-time visitors accounted for less than a third of the total population studied. The pattern has remained constant in studies completed since then (e.g., Schreyer and Nielson 1978, Heberlein and Vaske 1977). In the National River Recreation Study (1978 data), 56 percent of all respondents had never before been on the river where they were sampled. However, there was considerable range in the percentage of first-time visitors--from 23 percent on the Salt River, a tubing river in Arizona, to 74 percent on the Colorado River, a whitewater stream, in central Colorado.

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[3] The National River Recreation Study is a nationwide survey of river recreationists being conducted by the North Central Forest Experiment Station. The focus is to develop and apply standardized survey techniques for describing patterns of behavior, characteristics, and management preferences of recreation users across a variety of rivers and over time (Lime et al. 1979). So far, 39 different rivers or river stretches throughout the country (including Alaska) have been studied: 11 were studied in 1977, 13 in 1978, and 23 in 1979. Five rivers were studied in more than one use season.

Many river recreationists are novice. In the National River Study, we asked respondents to identify other river trips they had taken by innertube, canoe, raft, kayak, or other watercraft. From the 1978 phase of the study, nearly a quarter were on their first river trip.

Partly because of their lack of experience, many participants rent rather than own their watercraft. On the Pine and Au Sable Rivers in Michigan and the Current and Jacks Fork Rivers in Missouri, about 80 percent of all canoes were rentals (Bassett et al. 1972, Marnell et al. 1978, Solomon and Hansen 1972). On many whitewater rivers, particularly in the West, most participants use rented watercraft or ride in crafts piloted by commercial guides. In 1978 on the Snake River in Hell's Canyon, for example, 63 percent of all visitors travelled in commercially outfitted groups (Shelby and Danley 1979).

Most river trips involve at least some preplanning, and most river recreationists decide to go on their trip at least a week in advance. Sometimes, especially where river camping is involved, the decision is made further in advance than for day trips. For example, 52 percent of the campers in the National River Study (1978 data) decided to go on their river trip more than a month in advance. By contrast, day trippers are much more spontaneous in their planning. From the National River Study, 43 percent of the day users planned their outing no more than a week in advance--11 percent of all day users surprisingly planning their trip within 24 hours. Heberlein and Vaske (1977) found most tubers in Wisconsin did no advance planning or at most, planned 1 or 2 days ahead. Most canoeists on the Au Sable River in Michigan were day users and made plans for their trip no more than a week in advance (Bassett et al. 1972).

Although the size of groups can vary considerably among rivers and types of visitors (such as between kayakers and commercially outfitted rafters), group size tends to be considerably higher than in many other recreational pursuits such as hunting, hiking, wilderness camping, fishing, and snowmobiling. In the National River Recreation Study (1978 data), the median group size was 9 but ranged from 5 persons per group on the Salt River in Arizona to 20 persons on the Kings River in California; 11 percent of all visitors were in groups of more than 30 people. Organizational groups tend to be larger than groups of family members or friends (Marnell et al. 1978) and, in most instances groups that use commercial services are larger than privately outfitted groups. In a 1974 study of the Rogue River in Oregon, for example, 75 percent of the commercially outfitted parties ranged from 16 to 25 people while only 13 percent of the noncommercial parties consisted of that many (Pfister 1977).

River recreationists take river trips for a variety of reasons. The National River Recreation Study (1978 data) preliminary analysis suggested that among the most important reasons for taking river trips are: (1) to be with other people, (2) to escape the day-to-day demands at home, (3) to get exercise, and (4) to learn about nature. Similar results were found in other studies (Bassett et al. 1972, Heberlein and Vaske 1977, Solomon and Hansen 1972).

The reasons recreationists had for taking river trips are generally quite different than the reasons for participating in some other recreation activities. For example, data from the National River Study and from urban residents in three midwestern cities suggest that people who play sports, visit zoos and museums, or go to the theatre do so for different reasons than people who take river trips (Peterson et al. 1978). For example, people who take river trips had a stronger desire to get away from the day-to-day demands of life at home.

River recreationists often pursue activities far from home. The distance river recreationists travel may be related to the site attractiveness or site "demand" of the resource (Peterson et al. 1979). Data from the National River Study (1977 data) confirmed that whitewater rafters and kayakers tend to travel further from home than do the more casual canoeists. On the Main Salmon and Middle Fork of the Salmon Rivers in Idaho, visitors travelled an average of more than 800 miles (one way) to float those rivers. On the other hand, visitors to the Mohican River in central Ohio, a flat-water canoe stream, travelled an average of only 76 miles.

PROBLEMS ASSOCIATED WITH INCREASED POPULARITY

Multiple access and egress points, multiple land ownership patterns, variations in water flow, and a recreating public in search of a variety of outdoor experiences have caused headaches for resource administrators.

Social problems

Large groups of river recreationists often infringe on the enjoyment of smaller groups. Groups of over 120 people have been observed on Michigan's Pine River (Solomon and Hansen 1972). On Oregon's Rogue River, one party contained 38 rafts! Though only a small proportion of total use, they may have a disproportionate impact on the experience of others. Many large groups are organizations, clubs, and fraternal groups, and they float rivers primarily for a social experience. The value that large groups attach to their trip is often different from those of smaller groups (Stankey 1973, Lime 1972). Some studies have revealed that objection to seeing large groups is not so much related to their numbers but rather their inconsiderate behavior, such as yelling or shouting (Driver and Bassett 1975, Bassett et al. 1972). Often, inconsiderate behavior is related to the consumption of alcoholic beverages. On many rivers the stream bed and banks are littered with cans and bottles. Clean-up crews on the Pine River in Michigan reported 1,000 containers within a 1-mile section; most were beer cans and bottles (Marek 1979).

Congestion is a common problem on many rivers. Large "armadas" have been observed on one stretch of river while other stretches of the same river are nearly deserted (Warren 1977). These large concentrations often occur because of the seasonal, weekly, and daily peaks in use. Most trips are taken between Memorial Day and Labor Day, during the latter part of the week and on holidays, and begin in mid-morning. Since most groups travel at about the same speed, they tend to create congestion at access and egress points, campsites, rapids, and other attractions.

The congested conditions on some rivers has led to animosity among different groups of recreationists. A common situation is heavy competition for campsites, often expressed in open hostility (Warren 1977). Some recreationists resent others who use different types of watercraft. Heberlein and Vaske (1977) found canoeists consistently disliked meeting other recreationists more than tubers did. In the Boundary Waters Canoe Area Wilderness (BWCAW), Lucas (1964) and Starkey (1973) found paddle canoeists strongly objected meeting motorboaters. On the Colorado River in the Grand Canyon, recreationists travelling in oar-powered rafts objected to motorized rafts because of their noise (Shelby 1975).

Research shows that while recreationists in nonpowered craft oppose meeting motorized groups, most motorized parties don't mind meeting nonmotorized groups. In the BWCAW, for instance, nearly half of the motorboaters studied said it wouldn't matter how many other parties they met per day (Lime 1977b). Significantly fewer motor canoeists (29 percent) and paddle canoeists (13 percent) felt that way.

Some river recreationists have altered their participation patterns because of what they perceive to be unacceptable conditions. In some areas such feelings have resulted in significant numbers of recreationists being displaced. Becker and his associates in studying the St. Croix and Mississippi Rivers in southeastern Minnesota (1979), for example, found that recreationists seeking social experiences tended to gravitate to one section of the river system while those seeking low density experiences went to another section. They also found that some recreationists were purposefully avoiding areas and times when use densities were highest.

Commercial outfitters and noncommercial users often compete for the opportunity to float rivers (Utter 1979). Competition has been particularly prevalent on western whitewater rivers, but the problem is growing nationwide. The competition has resulted in direct and indirect conflicts among recreationists, expressed in threatened and actual lawsuits and Congressional inquiry. On the Colorado River in Grand Canyon, for example, a battle has been raging since the early 1970s over the 92:8 split in the allocation of use permits between commercial and private parties. The National Park Service, with support from private users, proposes to increase the proportion of private trip permits while most commercial operators want to maintain the status quo (U. S. Department of Interior 1979). Such intense debate inhibits management initiative and often results in long legal deliberations (Jensen 1979, Shelby 1979).

River recreation use causes conflicts with other uses and users of rivers. In Michigan, for example, there are several rivers with high quality trout fishing but canoeing on weekends has increased to where fishermen have found it difficult to fish. And, many have had to alter their regular fishing times or have stopped fishing those streams (Marek 1979, Bassett et al. 1972).

On some popular rivers there are conflicts between riparian landowners and river recreationists. Some of the most serious problems center around littering and trespassing (Countess et al. 1977, Cox and Argon 1979). Other conflicts arise from vandalism, invasion of privacy, and noise (Bassett et al. 1972). In some areas landowners respond by posting their land (Cox and Argon 1979) or have threatened to take or have taken the law into their own hands.

Ecological problems

Destruction of native ground vegetation is common along many streams and rivers (Aitchison et al. 1977, Manning 1979, Marnell 1978). The most common cause of vegetation destruction is trampling; but, since recreationists spend a large portion of their time on the river, impacts to ground vegetation does not occur uniformly throughout the river corridor. Instead, impacts usually are concentrated at accesses, campsites, and near other popular stopping points.

In areas where use is especially concentrated such as at campsites, studies have determined that after the first few seasons when ground vegetation is fairly rapidly reduced to some low point, there is a natural recovery or adjustment in the vegetation (Settergren 1977). Generally, however, there is a shift to more recreation-tolerant species (Merriam and Smith 1974). But under sustained use, the ground vegetation will be progressively reduced until it cannot recover naturally. On heavily used areas along the Current and Jacks Fork Rivers in Missouri, for example, researchers found that the rise in density of replacement species moderated the decline in original ground cover vegetation (Marnell et al. 1978). However, with further increase in recreation all ground vegetation was eventually lost.

The removal of trees and shrubs by recreationists is a problem where impacts are concentrated. Numbers of smaller seedlings and saplings decrease and vegetation patterns are affected over prolonged periods (Schmidly et al. 1976). Recreationists sometimes cut or remove vegetation to enlarge campsites. In the BWCAW, Merriam and his associates (1973), found that newly constructed campsites approximately doubled in size during a 3-year period.

Malicious chopping of exposed roots, trunks, or limbs, and live-tree cutting late in the use season when deadwood becomes scarce, can reduce standing vegetation (Marnell et al. 1978, Schmidly and Ditton 1978).

Loss of vegetation often results in soil erosion. On riverbanks soil erosion is accelerated because of the contour of the land and/or the properties of the soil. The sandy or depositional nature of the soil can contribute to the lack of stabilizing vegetation and erosion often is rapid and devastating. Hansen (1975), for example, found on the Pine River in Michigan that streambank erosion was dramatic as a result of recreationists sliding down steep sandy banks. Merriam and Smith (1974) found in the BWCAW that campsites were subject to considerable recreation-induced erosion. On footpaths along the Colorado River in Grand Canyon, Dolan and his associates (1974) found surface erosion up to two feet deep. The season, duration, and intensity of use influences the extent and nature of erosion in such arid environments. A site may be very durable during drier months, but heavy use during spring when the water table is higher can result in greater and more pronounced erosion.

Motor vehicle use in river corridors and in the stream bed also causes soil erosion. Tracks left by vehicles roughens the soil which accelerates erosion. Such traffic can alter the natural form and distribution of gravel deposits in stream beds and affect normal shifting and development of gravel bars (Marnell et al. 1978). Riverside campsites accessible by road also are particularly vulnerable to heavy use followed by erosion. On the Rio Grande River in Big Bend National Park, riverside auto campsites were among the most heavily used (Ditton et al. 1977); the same along Michigan's Pine River (Hansen 1975).

Sedimentation from erosion in turn affects the water quality. Increased sedimentation causes increased turbidity, nutrient enrichment, and the smothering of bottom flora and fauna. On some high quality, sensitive trout streams, for example, sedimentation has destroyed the fishery resource. In most instances, however, recreational impact is localized (Merriam and Smith 1974), and does not contribute significantly to sedimentation (Marnell et al. 1978).

Along many recreational rivers, the disposal of human waste is a serious and growing problem and a potential public health hazard. Sanitation facilities are generally not available. Improper disposal of human waste can cause biological contamination or nutrient enrichment of rivers. Merriam and his colleagues (1973) found that recreational use of some campsites increased coliform bacteria and phosphate concentrations in lake water to a point higher than public health standards allowed for drinking water. On some rivers, especially those in canyon settings, the area available for sewage burial is very limited. Aitchison and his associates (1977) report that on the Colorado River's most popular beaches in Grand Canyon National Park, it was not uncommon to uncover previous human waste sites. A number of cases of infectious illness due to inadequate sanitation practices occurred among recreationists on the river (Knudsen et al. 1977).

The severity of the human waste problem and the attendant health hazard is related, in part, to the character of the local ecosystem. On the Current River in Missouri, for instance, the warm humid climate, rich vegetation, and porous soil lessens the problem because decomposition is so rapid. Also, periodic flooding leaches residual wastes from the floodplain (Marnell et al. 1978). In contrast, on the Colorado River, the hot, dry climate prohibits the proliferation of decomposer bacteria. Harmful bacteria accumulate in beach sands, partly because an upstream dam has eliminated floods that formerly scoured and shifted beaches. Even after a year, fecal coliform bacteria of unacceptable levels were present in beach sands (Aitchison et al. 1977).

Litter or solid waste poses another challenge to river recreationists, resource administrators, and the general public. Managers on Michigan's Pine River estimated 20,000 beverage containers were strewn along a 40-mile stretch (Doehne 1977). Recreationists there are sensitive to this problem. When a sample of canoeists were asked what was "the low point of your river trip", litter was the most frequent complaint (Solomon and Hansen 1972). Besides being aesthetically unpleasing, litter or solid waste is a potential human health hazard because it creates a potential food supply for insects and animals. The artificial food supply may lead to unnaturally high densities of some mammals which can lead to poor health among populations and transmittal of diseases (Aitchison et al. 1977).

RESPONSE TO RIVER RECREATION POPULARITY

Before the 1960s, active river recreation management was virtually nonexistent. However, some federal agencies and state governments did attempt to protect free-flowing rivers in their natural state, but most efforts were rather passive with few or no provisions for recreation management. Any management that was done was largely secondary or incidental to other concerns such as watershed protection, irrigation, and hydroelectric production. Some State and Federal agencies that owned riparian lands, did provide facilities such as boat ramps, campsites, and picnic tables. State agencies and the U. S. Coast Guard were responsible for management, most of which centered on enforcing compliance to federal and state water regulations, license requirements, and site maintenance.

As river recreation use grew during the late 1960s and early 1970s, the need for strong management became evident. In 1968 the national Wild and Scenic Rivers Act (Public Law 90-542) was established to preserve certain selected rivers in a free-flowing condition. That same year the President's Council on Recreation and Natural Beauty (1968) recommended a nationwide protection of natural rivers through State action. Legal efforts such as the national Wild and Scenic Rivers Act, and State programs, helped focus attention on rivers as recreational resources but they did not mandate specific actions. These were left to the field units.

During the 1970s, management activities proliferated--especially establishing management objectives. Managers tried to define the type of recreation experience the river environment would provide by deciding what kinds and amounts of use to allow on the river.

Management ranged from trying to change behavior by rules and regulations to trying to change it by suggestion through printed and spoken media. Some approaches used to deal with increased use are presented below.

Use has been restricted where the demand is judged to exceed supply. An allocation or rationing scheme is used. Typically, an upper limit is set on use (i.e., on the number of people, number of groups or visitor days). Use opportunities are systematically allocated to competing river recreationists. As mentioned, on some western whitewater rivers commercial outfitters and private users compete heavily, so managers must establish use ratios between competing groups. Generally, ratios have been determined either by past use in a given year or are arbitrarily chosen (Elliott 1977). On the Colorado River in Grand Canyon, the current ratio is a 92:8 commercial to private split, the Selway River in Idaho has a 20:80 commercial to private split. Most rivers under the control of the Bureau of Land Management have a 50:50 split (Elliott 1977).

Many rationing mechanisms can be used (Stankey and Baden 1977). Most commonly potential recreationists and commercial outfitters apply for a use permit. From the pool of applicants a predetermined number of permits are issued. For example, managers of the BWCAW established daily entry point quotas for overnight campers by travel zones. The quotas were computer generated using a travel behavior model that predicted the number of people that could be allowed at an entry point without exceeding a predetermined capacity (Peterson 1977). Recreationists are encouraged to apply for a permit before their trip. When a zone reaches capacity no other recreationists are permitted to enter. Instead they must wait another day or until an entry permit becomes available, or select another entry not yet at capacity (Higgins 1977).

Managers sometimes prohibit certain uses to reduce conflicts. When attempts are made to prohibit an activity it often is debated in the political arena and decided by the legislative process. These attempts have had varying degrees of success. In the BWCAW, for example, efforts by conservationists and others were only partly successful in prohibiting motorized craft on waterways, and only after a lengthy legislative process. In Michigan, the Department of Natural Resources sought, among other things, to reduce the number of canoes allowed on the Pine River by 40 to 60 percent. Opposition by local canoe outfitters resulted in a 7-year legal battle over the authority of the State to restrict use (Marek 1979).

Zoning techniques have been used to reduce conflicts among recreationists. On a major portion of the Lower St. Croix River between Minnesota and Wisconsin, "no wake zones" have been established to lessen the conflict between canoes and motorized craft. Horsepower limitation zones have also been used; e.g., 10 horsepower on the majority of motorized routes in the BWCAW.

Time zoning is another way to separate incompatible users. On some trout streams in Michigan fishermen are encouraged to use the river in the early morning and late afternoon hours when canoeing is prohibited. Another popular use of time zoning is the scheduling of trip departure times--from the day down to the hour. On the Chattooga River, for example, commercial outfitters are limited in the number of trips they can make on weekends and are assigned departure times at least an hour apart (Craig 1977).

Informing future visitors about past use in the BWCAW has been successful in reducing congestion and crowding. A brochure pointed out heavily used places so recreationists can avoid crowded areas and peak use periods (Lime and Lucas 1977).

Simulation modeling is a useful tool for managing river recreation use. Lime and his associates (1978) perfected a simulation model to predict patterns of river use occurring under a variety of conditions on the Green and Yampa Rivers in Dinosaur National Monument. The simulation and actual patterns of use were compared to test the simulator's validity and were found to be in close agreement.

To control ecological impacts, limiting party size and assigning campsites are widely used. The assignment of campsites provides an opportunity for vegetation to recover from previous use. On the Middle Fork of the Salmon River in Idaho, trips are scheduled so a particular site is vacant at least 4 of every 10 nights. In the BWCAW only 67 percent of the campsites in a travel zone are expected to be occupied at any one time based on the distribution system now in use. Other techniques used to control ecological impacts include the requirement that recreationists carry fire pans and portable toilets (Mak et al. 1977). In many locales either a ban on cans and bottles or a pack-in - pack-out policy are in force. In the BWCAW, the can and bottle ban has been successful in reducing visual blight. On the Eleven Point River in Missouri, the pack-in - pack-out policy has been reported to be successful (75 to 90 percent of empty cans are removed) (Craig 1977).

Because rivers have common management problems most resource administrators recognize the need for coordinated management among rivers. In response to this need, river managers in the West in 1973, formed the Interagency Whitewater Committee (IWC), composed of representatives from the Forest Service, Bureau of Land Management, Park Service, and Coast Guard. For the most part, the IWC membership is made up of field managers not upper management. The IWC's primary function is to serve as a forum for the exchange of ideas and experiences and to foster a unified interagency approach to river management. The IWC has been instrumental in coordinating western whitewater management activities through the development of the Interagency Management Guidelines (Yearout et al. 1977).

The U. S. Forest Service and the Bureau of Land Management are drafting river recreation management supplements to their manuals. In addition both agencies have conducted fact finding reviews concerning river recreation management activities.

Between the 1960s and late 1970s river recreation management activities grew from largely passive efforts to rigorous innovative activities. But, much management was done by intuition alone. There is now a generation of river managers who have gotten their "feet wet" and who recognize the need for comprehensive and systematic information to assist in the decision process. In fact, the Forest Service and Bureau of Land Management have been given legislative mandates to manage in a more systematic fashion (Lime et al. 1979). As a result, management is now more active and managers are searching for information from research and/or public involvement to establish objectives and solve problems.

FUTURE PERSPECTIVES

In the years ahead the "supply" of river recreation will be threatened by our expanding consumptive needs. Government at all levels, and conservation and other organizations will continue their efforts to identify and protect river recreation resources. But, the intensity of urban and second home development, farming, lumbering, mining, manufacturing, and energy production along rivers will probably reduce recreation opportunities.

Opposition to the administrative designation of rivers for recreation, will increase, especially from local landowners and residents. We suspect that opposition will be based, in part, on people's mistrust and misunderstanding of government intentions in designating rivers for recreation. The cry of "public land grab" will persist and become louder. And, in areas where private land adjoins rivers posting will increase.

Management intervention will increase. In the "near" future, demand for river recreation will continue to increase at a rapid rate. More inexperienced recreationists will be creating safety hazards for themselves and for others. Conflicts among different river recreationists will increase along with increased competition for use of the resource. Some recreationists will probably shift their use to lesser used rivers while others will stop participating altogether. Rationing of use opportunities will become more widespread and will remain controversial and challenged.

Over the long term--20-30 years--demand will level off. The leveling off is expected because the nation's population growth declined markedly in the last decade and will continue to do so. The post World War II "baby-boom" generation makes up the bulk of current river recreationists. As they age and as the effects of a lower birth rate is felt, river managers will be serving a "different" and less rapidly expanding clientele (Marcin and Lime 1977). Future research and management will be oriented towards determining and serving the needs and preferences of the changing clientele.

In the future many management decisions will be decided through the legal and legislative process. Managers will be directed to devise strategies that will insure a spectrum of opportunities. Regional coordination will become more important so that use can be allocated uniformly and efficiently.

Technological innovations will influence demand. Although we will not predict what innovations might occur, some speculation is possible. Technology will assist managers as well as create new problems. Computer technology will be used more widely to aid managers. Technology will also cause management problems by creating equipment that will be capable of performing beyond current expectations.

Energy costs will affect participation in river recreation. People will probably limit their visits to more distant rivers and will probably stay longer. Day trips to rivers closer to home will become more prevalent.

Research will become more important to management. The demands placed on the resource necessitate more systematic evaluation. Pioneer research by academicians and others will assist in setting policy. Also, research by field agencies will increase. Field agency research will monitor the river management to evaluate its success.

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CAMPING AND RV TRAVEL TRENDS[1]

Gerald L. Cole and Wilbur F. LaPage[2]

Abstract.--This paper summarizes the results from industry sources and several regional and national camping market surveys conducted between 1960 and 1979. Growth of the industry, together with pricing practices, energy impacts and occupancy data was also examined. By 1978, the number of inactive campers outnumbered active campers nationwide with persons less than 30 showing the greatest tendency to become inactive. Growth of the industry slowed in the 1970's, but franchised campgrounds provided an increased share of sites. A decline in campground occupancy was noted in 1979 and appeared to be correlated with gasoline shortages.

INTRODUCTION

The popularity of camping and RV travel continues to grow. According to a 1979 survey, camping now ranks third behind swimming and bicycling among outdoor recreation activities. The purpose of this paper is to explore numerous trends, primarily in the 1970's which have affected the camping market including number of active, inactive and potential campers. We will examine socio-economic characteristics of the general population and campers in particular. Trends in changing patterns of camper participation are discussed, including annual days of participation, adoption of new activities and new camping locations. Related to participation changes are the types of equipment used and preferences for private and public campgrounds. Perceptions and images of camping will round out the recent trends from the standpoint of the camping public.

On the supply side, recent trends in the number of campgrounds and campsites per campground in both the public and private sectors will be examined. Closely associated is the growth in franchising of campgrounds. Trends in camping fees at both private and public campgrounds will be related to facilities offered.

Energy cost and availability will be discussed with respect to camper reaction during the mid or late 1970's.

Finally, occupancy data for 1978 and 1979 will be utilized as an indication of the economic viability of the industry.

THE CAMPING MARKET

Numerous regional and national surveys have been completed since 1960. While direct comparisons are sometimes ruled out by different methodologies, a clear pattern of growth in number of campers and camping households emerges.

The earliest national survey, conducted in 1960 found 3-4 million acting camping households in the U.S. (ORRRC, 1962). The number had increased to six million by 1965. A series of three comprehensive national camping market surveys was conducted in the 1970's (LaPage 1973, Kottke and others 1975, LaPage and Cole 1979).

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The first in 1971, found 12.4 million active households; the second in 1973, 14.3 million; and the third in 1978, 17.5 million. While camping participation grew at an average annual rate of 20 percent in the 1960's, growth slowed to less than 8 percent in the early 1970's, and to less than 5 percent in the late 1970's, Table 1.

Growth in total numbers of people was at a somewhat slower rate since average household size declined from 3.33 persons in 1960 to 2.79 in 1979. Three Nielsen surveys (1979) conducted in 1973, 1976 and 1979 support this contention. The number of camping participants increased 7 percent between 1973 and 1976, but the rate declined to 4 percent between 1976 and 1979.

Table 1.--Average annual growth in the numbers of active, inactive, and potential campers, and new households in the United States, during the periods 1971-1973 and 1973-1978, in percent

Market class	Average annual growth	
	1971-1973	1973-1978
Camper:		
Active	+ 7.6	+ 4.5
Temporarily inactive	+ 42.4	+ 9.8
Permanently inactive	+ 14.7	+ 10.4
All campers	+ 14.9	+ 7.2
Noncamper:		
High and medium potential	- 10.4	- 5.2
Low and zero potential	- 2.5	0
All noncampers	- 3.9	- 1.0
New households in United States	+ 2.3	+ 2.4

Source: LaPage and Cole 1979.

The total camping market picture is not complete without looking at the number of inactive campers and potential campers. Nationally, the inactive camper market (former campers) is growing at almost twice the rate of the active segment, Table 2. Between 1971 and 1978 active campers only increased from 19 percent of all households to 23 percent.

In 1971, one-third of all households had at least one adult who had camped; by 1978 the proportion had increased to one-half. Consequently, the pool of "potential campers" - in the high and medium potential category - declined from 12 percent of all households in 1971 to 6 percent in 1978. Growth in the number of active campers is reducing the supply of high potential campers since the active market continues to increase at nearly twice the rate of new household formation in the U.S.

Table 2.--Size of the American camping market in 1971, 1973, and 1978, as a percentage of total households

Market class	1971	1973	1978
Camper:			
Active	19	21	23
Temporarily inactive	5	9	12
Permanently inactive	9	11	15
Noncamper:			
High potential	3	1	1
Medium potential	9	8	5
Low potential	4	17	18
Zero potential	51	33	26

Source: LaPage and Cole 1979.

Camping market growth is not shared among the four major regions in the U.S. in accordance with population distribution, Table 3. Over half of the nation's new campers entering the market between 1973 and 1978 live in the North Central region. Concurrently, there were almost no losses in potential campers or increases in the number of temporarily inactive campers from that region. While the Northeast gained nearly one million campers during the same period, losses to the temporarily inactive category were nearly as great. The pattern in the Western region was similar to that of the Northeast. Meanwhile, the Southern region experienced a net loss in the number of campers even though the largest supply of prospective campers resides there.

An important conclusion may be drawn from the camping market analysis. By 1978, for the first time, the total of permanent dropouts and temporarily inactive campers exceeded the number of active campers. There were two active campers for every inactive in the late 1960's and early 1970's; by 1973-74 the two groups were about equal and today former campers outnumber active campers by over 2 million households.

Characteristics of campers

Demographic characteristics of the population change rather slowly and since camping is a rather broad based participant activity, a similar pattern prevails.

Age. Historically, campers have predominately been persons less than 40 years of

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Table 3.--Distribution of active, temporarily inactive, and potential camping households, by region, 1973-1978[a], in millions

Region	Total households		Camping market households					
			Active		Temporarily inactive[b]		Potential[c]	
	1973	1978	1973	1978	1973	1978	1973	1978
Northeast	16.4	17.3	2.3	3.3	1.0	1.8	2.1	1.1
North Central	18.4	20.1	3.2	4.9	2.1	2.2	1.2	1.1
South	21.2	24.2	4.8	4.6	2.0	3.0	2.2	1.9
West	12.3	14.4	4.0	4.7	1.2	2.1	0.6	0.4
United States[d]	68.3	76.0	14.3	17.5	6.1	9.1	6.1	4.5

[a] For an approximate estimate of total persons (campers), multiply 1973 households by 3.01 persons per household, and 1978 households by 2.81.

[b] Temporarily inactive campers have not camped for 3 years _or_ longer. If longer, they said that they had not quit. In 1973 there were an additional 7.5 million permanently inactive households which had increased to 11.4 by 1978.

[c] This includes "high" and "moderate" potential for camping; that is, those who plan to camp or who have a distinct interest in trying it. In 1973 there were an additional 34 million households with little or no interest in camping--by 1978 this figure had not changed significantly.

[d] _Northeast_: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania.
North Central: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas.
South: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas.
West: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California.

Source: LaPage and Cole 1979.

age reflecting in part the experiences of young campers, and camping by young families on vacation or weekend outings, Table 4. However, between 1973 and 1978, a large increase in inactivity occurred among heads of households less than 30 years of age. The inactivity may be temporarily due to formation of new households (young children, etc.), but if it becomes permanent this will lend to support the contention made earlier about the increased supply of inactive campers. Furthermore, additional survey results indicate a decline in the participation of children under 12 and teens 12-17 between 1976 and 1979, -13 percent and -11 percent, respectively (Nielsen 1979). This further adds to underrepresentation of young persons under 30 years of age in the active market and skews the age distribution in favor of those over 30.

Education, occupation and income. These three demographic characteristics are highly intercorrelated and it is difficult to separate a meaningful cause and effect relationship between one variable and camping participation. Since 1960, some trends have emerged, however. Campers have consistently tended to have higher than median educational levels. For example, A KOA survey (1976) pointed out that 88 percent of camping heads of households have at least a high school education compared to 63 percent of the U.S. public.

Higher than average educational levels among campers transcends into overrepresentation of professional and white collar occupations among active campers. Conversely, in 1978, the largest proportion of potential campers came from the blue collar or semiskilled categories.

Table 4.--Age distribution for active, temporarily inactive, and potential campers in 1973 and 1978, in percent

Head-of-household's age	United States		Active		Inactive		Potential	
	1973	1978	1973	1978	1973	1978	1973	1978
18-29	27	30	44	41	38	55	42	39
30-39	19	19	25	28	23	15	26	22
40-49	15	14	12	14	15	14	17	20
50-59	15	14	10	9	15	8	8	14
60 or older	24	23	9	8	9	8	7	5

Source: LaPage and Cole 1979.

Finally, the educational levels and occupational groupings for active and inactive campers results in higher than average incomes. In 1976, 44 percent of camping households reported incomes in excess of $15,000, while nationally only 37 percent of households reported incomes in the same category (KOA).

Families vs. singles: Camping has primarily been a family activity and remains so; however, a new trend began to emerge between 1973 and 1978. There was a notable increase in the proportion of single campers and a decline in married campers, with even a more pronounced increase in singles in the temporarily inactive category, (LaPage and Cole 1979).

Changing patterns of participation

Another dimension on the camping market, in addition to the number of participants, is the frequency of participation. Also, a trend analysis of the frequency variable is useful in interpreting total growth of the market. One national survey reports a slight increase in average days of participation from 1973 to 1976, while the rate held steady between 1976 and 1979 (Nielsen 1979). Regionally, a gain was indicated in the North Central states between 1976 and 1979, while the Northeast registered a loss in average days of participation.

In the 1978 Forest Service Survey more active campers said they had recently increased their participation level compared to a decrease or the same level (LaPage and Cole 1979). Average days of participation were 15.98 and very similar to the 1979 Nielsen survey. The 1978 median participation rate was only two weekend trips of three days each. Thus, the heavy half phenomenon reported previously (LaPage 1969) continues to be important. In 1978, one half of the active campers accounted for 78 percent of all camping trips and 77 percent of the total camping days. The 1979 Nielsen survey reported that 32 percent of the active campers participated 20 or more days each year, accounting for 68 percent of total participation.

Travel patterns. The 1976 National Travel Survey indicated that camping trips tend to be longer, in miles, than other trips taken by Americans (U.S. Travel Data Center). In the 1977 NE-100 survey, campers said they were traveling farther from home than in previous years (Bevins and others 1979a). They were seeking new types of experiences or new campgrounds. As of 1977, energy concerns or costs apparently did not deter campers.

Equipment and facility preferences

Tents and recreational vehicles (RV's) were equally preferred in 1971, while in 1973 and 1978 surveys, RV's had gained slightly with motor homes showing the greatest percentage change, Table 5. Tents tend to be the preferred shelter for beginning campers (59 percent in the 1973 study).

RV shipments from manufacturers have been sensitive to general economic conditions and to the energy situation. For example, the gasoline shortage and the recession in early 1974, both likely contributed to a 41 percent decline in shipments compared to the previous year, Table 6. However, shipments regained momentum in late 1974 and the trend continued until 1976, followed by a decline in 1977 and 1978. Truck campers and camping trailers have exhibited a declining market share since 1970, and travel trailers a slight increase. Motor homes have captured the major increase.

Table 5.--Type of shelter used by active campers on last camping trip, 1971, 1973, and 1978, in percent

Shelter[a]	1971	1973	1978
Tent	50	41	42
Camping trailer	13	11	11
Travel trailer	17	17	19
Truck camper	15	15	12
Motor home	3	7	9
Van or converted bus	6	10	10
Pickup cover	6	5	11
Other	-	5	4
Unknown	-	1	1

[a] Totals exceed 100 percent because some campers use more than one type of shelter on a camping trip.

Source: LaPage and Cole 1979.

Table 6. Recreational vehicle shipments, 1970-1978

Year	Camping trailer	Truck camper	Motor home	Travel trailer	Total shipment	Change from preceding year
	- - - - -	percent	- - - -	-	thousands	percent
1970	31	25	8	36	380	- 5.2
1971	21	24	13	42	451	+ 18.7
1972	19	18	20	43	583	+ 29.3
1973	19	17	24	40	529	- 9.3
1974	19	15	23	43	296	- 44.1
1975	14	13	29	44	340	+ 14.9
1976	12	10	35	43	441	+ 29.7
1977	13	8	39	41	414	- 6.[illegible]
1978	12	6	40	41	390	- 5.[illegible]

Source: LaPage and Cole 1979.

A KOA study (1976) indicates that RV owners camp more nights per year than do tent users. RV users averaged 16 nights per year, tent users 9 nights. Greater convenience and a greater fixed investment may encourage more use of RV equipment.

Little difference in incomes has been reported between tent and RV users; however, a Delaware study concluded that campers earning more than $10,000 per year preferred less campsite development than did those earning more than $10,000 (Brokaw and Cole 1977). The standard level of development included picnic tables, level parking, flush toilets and showers.

Although public campgrounds were used more than private campgrounds in both the 1973 and 1978 studies, the market share for private campgrounds appears to be growing. This trend is likely associated with greater use of RV's since private campgrounds offer a greater opportunity for utility hookups.

Perceptions and images of camping

Americans' perceptions of camping as an outdoor recreation activity were utilized in the 1973 and 1978 national surveys as one means of assessing the market's growth potential. A series of word pairs on a 5-point rating scale ranging from very favorable to very unfavorable were used to develop a composite image. For example, respondents could rate camping as convenient or inconvenient, safe or unsafe, etc. The general public preceived camping to be substantially more favorable than unfavorable, Table 7. Furthermore, there were very few changes in those images between 1973 and 1978.

A major concern was whether perceptions of camping might act as barriers to participation. If potential campers view camping as "difficult" or complex then they may be unlikely to try the activity. In 1973, 50 percent of all prospective campers thought camping would be easy, but by 1978 the percentage had declined to 41 (LaPage and Cole 1979). Also, "comfortable" dropped from 54 percent to 39 percent and "fun" from 57 percent to 42 percent for the same group. Perceptions of crowding increased from 35 percent to 43 percent. The same kinds of perceptual limitations will likely prevent temporarily inactive campers from returning to the active market.

Most importantly, increasingly favorable perceptions among active campers could reflect increased satisfaction and a reduced likelihood of their dropping out of the market. Of the image factors included in the surveys, eight showed higher positive images and four higher negative images in 1978, compared to 1973 (LaPage and Cole 1979). For example, active campers in 1978 felt that camping was less crowded (+10 percent), more convenient (+8 percent), interesting (+5 percent), easier (+3 percent) and more confortable (+3 percent) than in 1973. Conversely, active campers felt it was less safe (-9 percent) and less fun (-5 percent).

Camper's satisfaction with the last camping trip was quite stable between 1973 and 1978, Table 8. The data collected suggest that the accelerating dropout rate is apparently not due to a decline in the quality of the experience. One possible exception may be the availability of utility hookups which may not be keeping pace with the increased use of self-contained units. Also, a minor decline (4 percentage points) was noted among active campers in satisfaction with the level of camping fees. However, reaction to fee levels was more favorable among temporarily inactive campers in 1978, compared to 1973.

The "cost image" of camping is apparently changing for the better among all market segments except potential campers. Among temporarily inactive campers, the belief that camping is a more economical way of traveling and vacationing was much more prevalent in 1978 than in 1973, Table 9. The discrepancy between potential campers and those who have actually camped suggests that an industry sponsored cost comparison could be a source of market growth.

THE CAMPGROUND INDUSTRY - IS IT REACHING MATURITY?

Growth in the private and public sectors

The campground industry was young and exhibited rapid expansion during the 1960's. In the Northeast region, private campgrounds increased 800 percent between 1961 and 1967 and outnumbered public campgrounds by 4 to 1 (Moeller 1971).

Currently, there is no all inclusive inventory of tent and trailer campsites in the U.S. Inventories have been made periodically by the National Association of Conservation Districts - the most recent in 1974. Annually several commercial publishing firms monitor the industry for inclusion of public and private firms in their directories. However, many directories attempt to maintain certain quality standards for the benefit of their clientele. Hence, there is no intent to include all campgrounds. Also, in an industry which has been as dynamic as the campground industry, it is extremely difficult to be aware of all firms entering and exiting.

While there is no agreement on the number of campgrounds and campsites among the various potential sources of information, there is agreement that the industry growth rate has diminished in the late 1960's and during the 1970's. In the Northeast, the growth rate slowed to 12 percent per year between 1967 and 1971 (Bevins and others 1974). This was in part due to a conscious effort by public administrators to reduce the rate of campground expansion.

Two commercial sources indicate that the number of private campgrounds decreased by approximately 10 percent between 1973 and 1978 (Bevins and others 1979b). There is a discrepancy on public sector data; one source indicates a 25 percent increase, another a 27 percent decrease.

Data from Federal resource management agencies indicate a relatively stable supply

Table 7.--Percentage of camping market households with a positive image of camping, 1973-1978

Image description	All		Active		Temporarily inactive		Permanently inactive		High and medium potential		Low and zero potential	
	1973	1978	1973	1978	1973	1978	1973	1978	1973	1978	1973	1978
Environment:												
Interesting	55[a]	57	86	88	79	77	65	56	83	74	30	34
People friendly	59	59	78	79	66	75	69	59	64	57	47	44
Refreshing	44	47	73	71	70	68	47	41	62	58	21	26
Pleasant	52	57	81	84	73	79	63	59	81	81	27	32
Composite	52	55	80	81	72	75	61	54	72	68	31	34
Conditions:												
Clean	34	34	54	52	39	36	40	30	47	49	21	21
Safe	43	42	64	62	60	53	45	44	45	49	30	27
Uncrowded	25	26	29	34	26	30	36	25	35	26	19	21
Inexpensive	37	37	50	52	44	42	41	37	40	41	28	27
Composite	35	35	49	50	42	40	40	34	42	41	24	24
Attraction:												
Easy	35	35	56	62	47	40	36	37	50	41	21	18
Fun	40	39	62	57	56	46	45	45	57	42	23	25
Convenient	27	32	47	53	40	39	31	36	35	37	15	16
Comfortable	39	39	65	67	56	49	43	43	54	39	20	20
Composite	35	36	58	60	50	44	39	40	49	40	20	20
Number of respondents	2,199	2,013	450	423	214	238	281	318	198	109	1,056	908

[a] In 1973, 55 percent of the U.S. public felt that camping was interesting; that is, they assigned a 1 or 2 on a scale of 1 to 5 (1 being the most positive, 5 being the most negative).

Source: LaPage and Cole 1979.

situation in Forest Service and Park Service campgrounds and a modest increase at Corps of Engineer operated facilities during the 1979's (Bevins and others 1979b).

Utilizing the various sources of information, it appears that in 1978 we had approximately 7,000 public campgrounds and 9,000 privately operated enterprises.

It is also important to look at the trend in numbers of campsites. One source indicates an annual 20 percent increase nationally in the number of private sites between 1967 and 1973, and a 12 percent increase in public campsites (Bevins and others 1979b). Growth slowed between 1973 and 1978 to a five percent increase in the private sector and less than one percent increase in the public sector, Figure 1.

The trend is towards larger campgrounds. Private campgrounds averaged 88 sites in 1978, compared to only 28 sites in 1967, a 214 percent increase, Figure 2. In a Northeast regional study, private campgrounds averaging fewer than 50 sites were much less likely to be financially successful than larger units (Bevins and others 1974). Public campgrounds exhibit a similar

Table 8.--Camper satisfaction or dissatisfaction with last camping trip, 1973, and 1978, in percent

Degree of satisfaction[a]	Active		Temporarily inactive		Permanently inactive	
	1973	1978	1973	1978	1973	1978
Overall trip:						
Generally satisfied	93	93	89	91	73	78
Generally dissatisfied	4	5	8	8	16	14
Does not apply to my camping style	2	1	2	1	6	4
Campsite availability:						
Generally satisfied	78	78	75	83	63	71
Generally dissatisfied	9	11	12	9	13	15
Does not apply to my camping style	12	10	11	8	18	9
Hookup availability:						
Generally satisfied	53	48	54	54	39	52
Generally dissatisfied	5	8	7	8	7	9
Does not apply to my camping style	38	43	33	33	40	36
Recreation facilities:						
Generally satisfied	73	72	71	72	55	66
Generally dissatisfied	11	11	12	14	14	15
Does not apply to my camping style	15	15	15	13	24	13
Cleanliness and condition of campground:						
Generally satisfied	78	80	76	76	65	72
Generally dissatisfied	12	9	13	13	15	13
Does not apply to my camping style	9	11	9	8	15	10
Level of camping fees:						
Generally satisfied	70	66	70	75	54	65
Generally dissatisfied	9	11	8	6	5	8
Does not apply to my camping style	17	20	16	13	25	16

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[a] Totals do not equal 100 percent in most cases because of nonresponses.

Source: LaPage and Cole 1979.

Table 9.--Attitude toward the total cost[a] of camping compared with other ways of traveling and taking a vacation, 1973 and 1978, in percent[b]

Camping group	More economical		Less economical	
	1973	1978	1973	1978
U.S. public	43	46[b]	14	14[b]
Active	66	67	13	13
Temporarily inactive	51	72	18	9
Permanently inactive	45	49	18	19
High-potential households	51	40	15	5
Medium-potential households	53	47	9	13
Low-potential households	36	32	16	15
Zero-potential households	27	24	11	16

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[a] Respondents were asked to visualize the total cost of camping as including taxes on equipment, campsite fees, extra tolls, insurance, and other equipment costs.

[b] Totals for each year do not equal 100 percent due to many respondents reporting "no opinion."

Source: LaPage and Cole 1979.

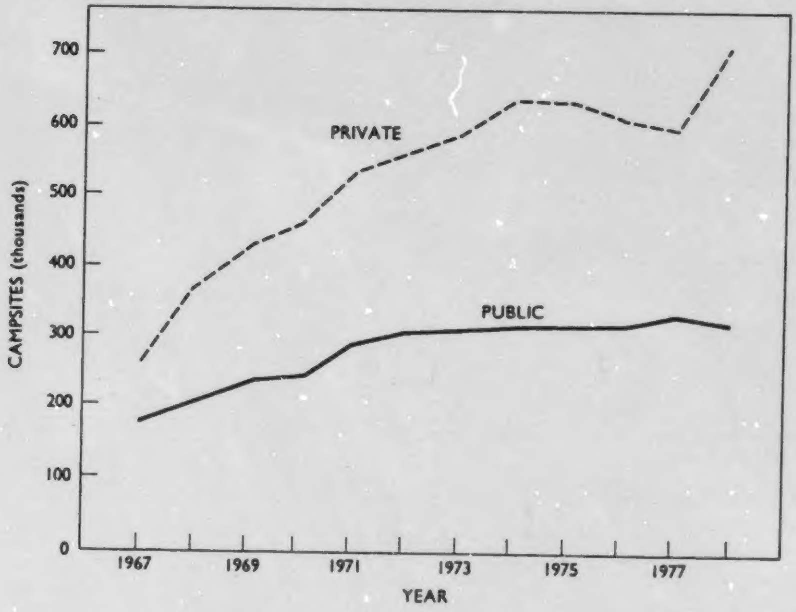

Figure 1.--Public and private developed campsites in the United States. Woodall management has indicated that 1977 private campsite numbers may be low because of changes in campground inventory procedures and not because there were fewer private campgrounds.

Source: Bevins and others 1979b.

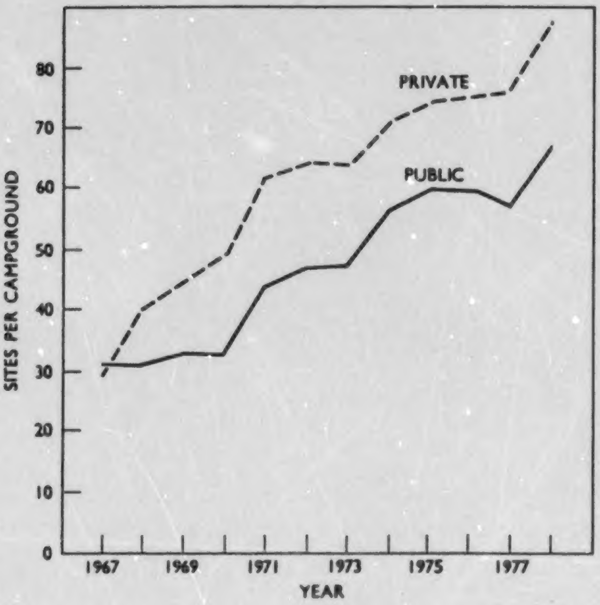

Figure 2.--Average number of campsites per campground listed by Woodall Publishing Co., 1967-1978.

Source: Bevins and others 1979b.

trend, more than doubling from 31 sites in 1967 to 67 in 1978 (Bevins and others 1979b).

Private campgrounds have grown out of economic necessity and in some areas due to zoning regulations that prevented establishment of new campgrounds but allowed existing businesses to expand. Growth has not occurred uniformly throughout the U.S. There was over twice the resident population per campsite (333) in the Northeast region compared to the Western region (154) in 1977 (Bevins and others 1979b). This ignores interregional travel among campers, but illustrates the disparity in available sites especially if energy concerns increase.

Growth in the private sector was likely stimulated by an additional trend which emerged during the 1970's - franchising. While the number of franchisers decreased from 27 in 1970 to 6 in 1977, franchised campgrounds grew to occupy an impressive market share (Oertle 1977). The 1976 Woodall's Campground Directory indicated that 12.1 percent of the private campgrounds were franchisees, providing 21 percent of the available private campsites. By comparison, this was over four times as many spaces as provided by the National Park Service and National Recreation Areas combined.

The franchisers stressed a package of services and amenities that couldn't be found in the public sector and that would appeal to the destination type camper. Included in the service package by some of the chains was a nationwide reservations service similar to that provided by motel chains.

Pricing practices

Fee structures in the private and public sectors are not always based on the same management goals. Traditionally, public agency managers have adopted the philosophy that public campgrounds should be only partially supported from rental fees.

Recent studies in Oregon, Pennsylvania and Rhode Island suggest that costs per site per night exceed fees charged by up to $12.00 (LaPage 1978). A few states, notably New Hampshire, have directed state park managers to adjust fees upward to recover full costs of development and operation. This is the exception, however. A Northeast study found that between 1960 and 1971 state park fees barely kept pace with increases in the prive level, with no allowance for increased development costs (Bond and others 1973).

Private campground owners have often criticized the public agencies as a source of unfair competition when less than full cost fees are charged. However, it appears that the private sector has attempted to carve out a segment of the market not being served by public campgrounds, and adjusted their fees accordingly. By 1977, more than three-fourths of all sites at private campgrounds had electricity and water, while only one-fourth of public sites had electricity and only one-tenth had water (Bevins and others 1979b).

An analysis of fees in the Northeastern states indicated that trailer site fees at private campgrounds were 43 percent higher than public fees for similar sites in 1977 (Bevins and others 1979b). The basic fee was $4.60 at private campgrounds, compared to $3.22 at public campgrounds. Both the private and public sectors increased fees between 1973 and 1977 with a slightly greater increase in the private sector (30 percent) compared to the public sector (27 percent). Fee increases varied considerably among states in the region. There was no increase at Connecticut's public campgrounds but a 95 percent increase occurred in New Jersey. Private fee increases ranged from 25 percent in Vermont to 40 percent in New Jersey. The variation in trends noted suggests that numerous forces were at work, including differing public policies concerning fees and variations in willingness to pay among campers. The highest fees were recorded in Delaware and New Jersey, two states near to major population centers with camping available to ocean beaches.

Willingness to pay studies have indicated that campers supported higher fees in both public and private campgrounds, although acceptable increases in private campgrounds were approximately half the level at public campgrounds (Bevins and others 1979b). This probably reflected the higher fees already being charged at private campgrounds.

Energy and economic conditions

The two Forest Service national surveys, conducted in 1973 and 1978, both attempted to learn of the impact of the gasoline situation and/or economic conditions on camping trips. Gasoline availability or cost, together with the total anticipated trip cost, were insignificant reasons given for either cancelling or shortening a planned camping trip. While shipments of recreational vehicles cited earlier appear to be sensitive to economic conditions, the above results do not suggest that camping participation has been affected.

Participation in relation to industry capacity based on occupancy data

One of the key indicators of the economic health of the hotel-motel industry is percent occupancy. Similar statistics should be beneficial to the campground industry. For the first time, in 1978, the National Campground Owners' Association coordinated a nationwide effort to monitor weekly occupancy data from a sample of campgrounds. The effort was successful and was expanded from 94 campgrounds in 1978 to include 259 in 1979. Consequently, two years of data are available for the period from Memorial Day to Labor Day.

Nationally, average daily occupancy declined from 58 percent for the 1978 season to 47 percent in 1979, representing a 19 percent loss in business (LaPage and Cormier 1979). While in prior studies campers said they had not curtailed trips because of gasoline cost or availability, it appears that they were influenced in 1979. The decline in occupancy was greatest in the Western region. Seasonal 1979 slumps appeared to coincide with the appearance of gasoline shortages in California. Likewise a decline in occupancy in other regions appeared to be correlated with gasoline availability.

Occupancy levels for both years were highest in the Northeast, followed closely by the Western regions. Levels were significantly lower in the North Central and Southern regions. Because of greater driving distances in the West, there was a smaller proportion of weekend only camping or less variation between weekday and weekend occupancy rates. In the Northeast, the smallest of the four regions, higher occupancy rates overall and weekend peaking reflect lesser distances from population centers to tourist attractions. Also, during 1979, seasonal rentals were up in all regions except the West.

While two years of data are insufficient to establish a trend, nationwide a 14 percent decline in occupancy between 1978 and 1979 was noted. Continued monitoring will be useful to evaluate the impact of energy and economic considerations.

SUMMARY AND CONCLUSIONS

Several national and regional market surveys and industry sources were utilized to establish trends in camper participation, characteristics of campers, attitudes about camping, travel patterns and equipment preferences. Growth of the industry, both in terms of campgrounds and the number of campsites, was also examined together with pricing practices, energy impacts and occupancy data.

By 1978, the number of inactive campers nationwide outnumbered active campers. Persons from 27 percent of U.S. households had tried camping and dropped it. Furthermore, there are fewer potential campers as viewed by the public's image of camping. Younger persons (less than 30) have become inactive in a greater proportion than other age groups in the population.

Camping still retains a favorable cost image as an economical means of traveling and vacationing among active and inactive campers, but to a lesser degree among potential campers. This may indicate a need for an industry sponsored cost comparison campaign to educate potentials.

Camper satisfaction with the last camping trip remained quite stable in the 1970's. A minor decline was noted in satisfaction with fee levels.

A noticeable slowdown in the rate of campground growth occurred during the 1970's. By the end of the decade, there were indications that the number of campgrounds could even be declining. However, it was apparent that the number of campsites continued to increase, reflecting expansion of existing campgrounds into more economically sized units. The number of campsites relative to population remained smallest in the Northeast region and largest in the Western region of the U.S. By 1976, franchised campgrounds provided over 20 percent of private sector sites.

Fees charged in the public sector often represented a management philosophy of recovery of less than full costs. Fee increases were greater in the private sector during the 1970's, perhaps out of economic necessity. Private campgrounds provided a greater share of utility hookups than the public sector.

Prior to 1979, there was no indication that energy availability or prices had been a deterrent to campers' planned trips. However, occupancy data for 1979 compared to 1978 clearly indicate a decline nationwide among a sample of reporting campgrounds. Declines in occupancy appear to be correlated with regional gasoline shortages. Occupancy levels were highest in the Northeast for both years and lower in the Southern and North Central regions. There was more weekend peaking in the Northeast, reflecting shorter driving distances and the least amount in the West because of greater distances. The question of energy prices and availability looms as a major challenge to the industry in the 1980's, particularly in view of a decline in the growth rate of the camping market.

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TRENDS IN THE MARKET FOR
PRIVATELY OWNED SEASONAL RECREATIONAL HOUSING[1]

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Abstract. The market for privately owned seasonal recreational properties, such as vacation homes, recreational lots, and resort condominiums has encountered many peaks and declines during the past 15 years. While demand for traditional types of recreational property has recently fallen off due to inflation and lack of financing, other alternatives such as resort timesharing are again beginning to stimulate the market.

INTRODUCTION

Since the late 1960's this nation has encountered a great proliferation in the supply of and demand for privately owned property for seasonal-recreational purposes. Included in this market are the three traditional commodities of vacant recreational lots, single family detached vacation homes, and resort condominiums and more recent innovative commodities such as timeshare units, lots sold as camping and recreational vehicle sites, and undivided interests.

While the market has gone through a series of peaks and declines in the 1970's, recent events indicate interest is being created anew by both producers and consumers. New products are being created and it appears the market will continue to be part of the lifestyle of many Americans.

It is estimated that somewhere between 12 and 15 million recreational lots and about 3.5 million vacation homes currently exist in this country. The market for vacation homes is oriented toward a user product as owners purchase these secondary shelters to enjoy during weekends and vacation periods throughout the year. The larger market for recreational lots is more complex in nature, being created by two major causal factors. The first relates to those persons who buy such lots for the immediate or future siting of a vacation home. The second relates to those persons who buy such lots for speculative purposes in the hopes of realizing equity appreciation on their invested capital.

TRENDS IN MARKET FOR RECREATIONAL PROPERTIES

Early History

In order to set the market for seasonal-recreational properties in proper perspective, it is useful to back up and describe how this phenomenon has evolved in recent years.

Seasonal occupancy of land and housing can be traced through the history of the United States. During the early colonial period, the land-holding aristocracy in the South frequently maintained their primary residence on the plantation, but owned second and third homes in other communities or areas that provided recreational amenities. This multiple home ownership pattern existed in the Northern states, where wealthy families are known to have owned additional homes for recreation before the Revolutionary War (Fenton 1965).

During the late 19th and early 20th centuries, peaks in vacation home ownership corresponded with periods of affluence and improvements in transportation. Such occupancy patterns influenced the development of traditional recreational areas such as Newport Beach, Palm Beach, the Adirondack Mountains, and the mountains of North and South Carolina and Virginia.

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Many factors have contributed to a tremendous expansion of the market for recreational properties during the past 2 decades. Although popular for generations, lack of both publicity and low-cost production methods seemed to maintain the traditional association between this type of property and affluence. Few marketing programs were directed at middle-income families until the early 1960's.

Historically, there have been 2 basic types of recreational land development occurring in this country. One was simply the scattered lot found in a rather secluded area not too far from a city. Favorite spots were around lakes, in mountains, and on the seashore. Typically purchase of the lot was made from an individual farmer or rancher who was selling off marginally productive or nonproductive land. Lots were usually small, density frequently high, with very few if any, public facilities being provided. Houses constructed on these lots often were small and usually were not built for permanent living quarters, e.g., the hunting cabin in the Maine woods or the lake cottage in the Adirondacks. Scattered lot development is still occurring today, but the mass market has shifted to a more organized type of sales promotion and land development.

A second type of historical development was a series of platted lots in scenically attractive areas. Again, lots were small (usually at urban densities) and public facilities and services were minimal. For the most part, locations were close to existing metropolitan areas in an attempt to tap the mass market. Many of these areas have evolved to the point where, today, they are communities of primary residences. Typical examples are found on Cape Cod, the Jersey Shore, and St. Petersburg, Florida.

Recreational land projects

During the late 1950's and early 1960's mass merchandising of recreational land began. As noted by one researcher (Burlingame 1973):

> Developers found that they could sell land by direct mail like soap. All that was required was to tie up the land by the purchase of options, make some minimal improvements, hire a sales force, launch an advertising campaign, and start selling. Many developers got rich on down payments alone. At first developers were selling retirement lots; later they switched from a retirement to an investment pitch, and the real abuses began. By 1970, this land merchandising business had become a gigantic industry selling between four and five million dollars worth of lots annually.

Probably nothing harmed the land development industry and created as negative an image in the public's eye as did these land merchandising projects. Land was prematurely subdivided, few amenities or services were provided, promises often were broken, consumers have been frequently dissatisfied, and buildout has remained extremely low.

The vacation home "subdivision" began to occur in the mid-1960's and has been described as follows (Burlingame 1973):

> Here, land is marketed more toward a user market within a certain distance of metropolitan areas. Often some recreational amenities were built such as man-made lakes, swimming pools, golf courses, etc. The general philosophy of developers was to construct the beginnings of a real community by making general site improvements, constructing some housing, and providing some developed recreational amenities. However, the business was still one of merchandising land. Every major metropolitan area in the United States has at least a few and often as many as 20 or more second-home communities nearby. This market was essentially a user market aimed at people who actually intended to use the property for leisure time pursuits, as opposed to those interested merely in speculative land investment.

The vacation home subdivision has a great range of quality as a large number of both good and poor projects exist throughout the country.

Recreational communities

A development frequently referred to as a recreational "community" began to occur in the late 1960's as is described as (Burlingame 1973):

> While developers are still making most of their money off of land sales, their time frame is greatly extended (5 to 20 years) and their plans for extensive development often include the construction of housing. The market is predominantly a user market of home buyers, rather than lot boyers. These developments are high amenity projects with developed recreational facilities such as golf courses, marinas, ski

slopes, and so on. Front end investments in recreational amenities and site improvements are high, and the companies either building or financing such projects are generally large corporate enterprises.

The market group is high income and often can afford to fly into their project from some considerable distance rather than get to their property via auto. Speculative investment still occurs, although often in housing rather than just land alone. These projects exhibit the greatest likelihood of financial success in terms of establishing a lasting and viable community or real worth.

Usually limited only to the very affluent consumer, community-type projects are fairly complete in almost every public service and facility aspect, in addition to offering a wide variety of recreational amenities. Many are advertised as "new towns," and while usually high in quality, they frequently still do not have the complete infrastructure associated with a well developed urban environment.

Resort condominiums

Resort condominiums started to become popular in the late 1960's. When compared with total acres devoted to recreational land use and the total number of vacation home units, the resort condominium market is still relatively small. However, in many parts of the country, (e.g., Lake Tahoe, the Florida coast, the Caribbean, and Hawaii) they have become extremely popular. For the most part, resort condominiums are found as part of a vacation home community-type of development, along with single-family detached vacation homes and individually owned recreational lots, though some have developed apart from these areas.

Timesharing

Other opportunities in recreational land also have become available to the consumer in the past few years including properties of shared ownership. It now is possible to buy a portion of a recreational shelter rather than the entire unit. Called "timesharing," this concept allows purchases to be made not only for units of space but also for units of time. Thus, a consumer can pay 1/52 of the total selling price of a condominium unit and be entitled to its use for 1 week of the year. This approach opens up the market to more persons of course since entry cost is considerably lower than for other types of recreational real estate.

The timeshare concept is described in more detail as follows (American Land Development Association 1978):

> Timesharing is a way for you to use or own resort accommodations when you want them, and forget about them when you don't. The term "timesharing" is pure American -- borrowed from the computer industry; but the concept is European -- and more than a decade old.
>
> Thousands of Frenchmen, Germans, Italians, and Englishmen vacation in their places in the Alps, or along the Mediterranean coast for a week, two weeks, or more each year, then return home comfortable in the knowledge that when they come again next time, their condominiums, hotel units or villas will be clean, well cared for and ready for them to move into. Each owns the right to exclusive use of anything from 300 square foot efficiency apartment to a luxury villa for a certain period of time each year, for anywhere from 20 to 50 years.
>
> In the early 1970's, two things combined to open the gates in the United States to this European immigrant timesharing. Condominiums for sale at major resort areas threatened to become so expensive as to preclude purchase by any except the well heeled; Americans began to realize that one did not have to own a condominium or other lodging to be able to depend on having it available to use when they wanted it -- just what the Europeans, who had long been limited in their real estate purchases by scarcity and high cost, had known for years.
>
> In this realization lies the central element of the resort timeshare: it is a means for the guaranteed use of resort accommodations and facilities and not an investment in real estate.

Types of timesharing fall into two broad categories:

> Where you may buy an ownership interest in real estate (the building and common area)
>
> Where you may buy a right to

> use the living space for a specified number of years but you do not have an ownership interest in real estate
>
> As a timeshare owner, you would generally be free to sublease or allow friends or family to use your timeshare in your absence. Or you can trade use informally, or formally through trading networks or exchange programs.
>
> Exchange programs are attractive for many reasons. Especially popular are the external exchange services, which offer maximum flexibility, and variety of choices, plus the help of an operating service in making arrangements.
>
> As part of an exchange program, without selling your timeshare, you may spend time in various kinds of resorts from the seashore to the mountains to foreign countries. You could, conceivably, go to a new place each year.

Undivided interest

Another recent concept being employed in the recreational property industry is undivided interest which refers to a system of conveying usufructuary rights wherein all members share equally in the use and ownership of the entire property.

Closely related to timesharing, the use of undivided interest as a means of dividing property on a share-and-share-alike basis is not a new phenomenon. It has been utilized in intentional communities, collective agriculture endeavors, hunting and ski groups, and as a common basis for partnership arrangements. What is new, however, is the application of this form of ownership to the development and marketing of large-scale recreation properties. Unfortunately, the newness and uniqueness of the concept makes it practically impossible to undertake a productive analysis of the state-of-the-art. Several undivided interest projects directed to the RV camper were initiated in the early 1970's. For the most part they were unsuccessful due to an economic recession, gasoline shortage, and probably the newness of the concept. During the past two years, several such projects have been attempted with varying degrees of success.

The main difference between timesharing and undivided interest is that in the latter alternative, the buyer has unlimited access to the recreational property (whether it be actual shelter or a campsite) while the former alternative only allows access during a specific time period. Also, undivided interest always gives the consumer shared ownership of the whole (land and improvements) while the opportunity of ownership may or may not be applied to timesharing.

An example of a recent undivided interest project is being implemented in Idaho. Here, 500 buyers will share equally in the ownership of a 4,000 acre ranch, cattle, an extensive set of recreational amenities, and 40 cluster housing units. For $40,000 apiece they receive 1/500 ownership in addition to unlimited access to the housing units throughout the year, on a first-come-first-served basis.

Summary of market trends

As indicated by the wide variety of products brought onto the recreational land market in the late 1960's and early 1970's, it once appeared that the demand for such items was almost insatiable. Between 1967 and 1973, millions of properties were created and purchased.

However, in late 1973 the market for recreational properties encountered a plethora of problems and went into a severe downturn for several years. Causes included such items as extensive negative publicity about consumer ripoff, a national economic recession and the tightening of financial resources, the energy crisis, environmental concerns, and a mass of new public regulations imposed upon the private land development process.

During about the middle of 1976, the market began to again become more active due to:

1. more discretionary income;
2. more faith on the part of the buyer that the many new consumer and environmental regulations assured a safer and more usable product;
3. availability of additional alternatives such as timesharing and undivided interest; and
4. traditional motivational factors such as status, familism, desire to participate in outdoor recreation, desire for ownership of real property, the frontier fantasy with open space and scenic areas, desire to escape urban disamenities, opportunity for equity appreciation, and a variety of other reasons.

While demand for privately owned recreational properties (especially vacant lots) may never again reach comparable proportions as during the 1967 to 1973 period, the market will most certainly always exist in this country to some degree.

MAGNITUDE AND LOCATION OF EXISTING RECREATIONAL PROPERTIES

Recreational lots

Reliable figures for the number of recreational properties are not available. Fragmented estimates are found in several sources, however, and can be used to provide some approximate base figures.

Since 1968, all recreational land projects in the United States containing more than 50 lots and that are advertised outside of the state in which they are located, have to be registered with the Office of Interstate Land Sales Registration (OILSR), in the U.S. Department of Housing and Urban Development.

In reviewing the OILSR data, it is found that almost 5 million lots were registered in 4,388 projects during the 10 years from 1968 to June 1977. Contained in these projects are about 4.4 million acres of subdivided land. Table 1 shows the location of these registered projects on a state-by-state basis.

Table 1.--Distribution of Projects, Acres, and Lots Registered With OILSR, By State, 1968 to 1977

State	Projects	Acres	Lots
United States	4,388	4,363,620	4,862,478
Alabama	28	12,812	14,601
Alaska	11	2,789	2,494
Arizona	443	464,745	392,336
Arkansas	72	90,270	149,451
California	399	415,130	287,652
Colorado	256	399,679	190,929
Connecticut	5	2,747	2,079
Delaware	34	3,067	7,340
Florida	665	1,426,065	1,716,898
Georgia	59	30,862	32,859
Idaho	47	10,175	9,192
Illinois	31	22,657	37,325
Hawaii	57	26,668	27,552
Indiana	45	16,741	32,515
Iowa	20	8,429	12,357
Kansas	18	7,434	16,238
Kentucky	65	11,493	23,680
Louisiana	19	10,451	11,811
Maine	27	10,827	10,814
Maryland	40	12,992	23,680
Massachusetts	30	8,249	11,363
Michigan	86	41,341	51,090
Minnesota	17	9,634	11,978
Mississippi	55	28,372	52,067
Missouri	111	33,204	63,025
Montana	22	5,896	3,726
Nebraska	7	2,693	7,218
Nevada	39	70,527	45,339
New Hampshire	53	14,756	10,784
New Jersey	16	5,295	12,031
New Mexico	94	390,108	422,477
New York	17	9,150	17,321
North Carolina	153	69,409	87,301
Ohio	40	15,652	39,359
Oklahoma	13	3,983	8,603
Oregon	79	50,639	23,676
Pennsylvania	166	113,135	157,680
South Carolina	44	18,646	20,855
South Dakota	3	167	198
Tennessee	63	30,956	59,701
Texas	510	269,679	531,465
Utah	72	32,031	28,329
Vermont	26	12,250	8,319
Virginia	111	61,871	93,072
Washington	117	41,824	51,924
West Virginia	23	4,957	15,788
Wisconsin	64	29,806	23,284
Wyoming	16	3,357	3,070

Source: U.S. Department of Housing and Urban Development, Office of Interstate Land Sales Registration, Washington, D.C. Unpublished material obtained from the office.

It is found that a very significant concentration of projects occurs in a small number of states. Almost 1/2 (46.1 percent) of the 4,388 projects are located in only 4 states (Florida, Texas, Arizona, and California). Over 1/4 (26.8 percent) are located in Florida and Texas alone.

Table 1 also provides information on the distribution of lots and acres in these projects. The 6 states of Florida, New Mexico, Arizona, Texas, Colorado, and California contain 77.2 percent of all the acres and 73.1 percent of all the lots. In absolute figures, we find that in these 6 states alone, about 3.3 million acres and 3.5 million lots have been subdivided in the past 10 years for recreational use.

When analyzing the location of recreational land projects registered with OILSR on a county-by-county basis, it is found that 1,310 counties have such projects. This represents about 1/3 of all the counties (3,115) in the United States.

Some 682 counties contain either: (1) 5 or more recreational land projects registered with OILSR; (2) 1,000 or more lots in such projects; and/or (3) 1,000 or more acres in such projects. Most noticeable locations for recreational subdivision activity are counties either: (1) along the major coast lines

(Pacific, Atlantic, Gulf, and Great Lakes); (2) in mountain ranges (Poconos, Ozarks, Rockies, Cascades, and Sierras); (3) throughout the southwestern states of Colorado, Utah, New Mexico, Arizona, and Texas; (4) in traditional recreation-oriented states such as Florida, Vermont, New Hampshire, California, etc.; and (5) surrounding major metropolitan areas and containing some type of natural recreational amenity.

While the preceding discussion indicates that recreational land development was very rampant between 1968 and 1977 as measured by the large number of projects filed with OILSR, it is estimated that perhaps only 2/3 of all recreational land subdivisions in the country actually have been registered. If these nonregistered projects were included, the totals would probably be closer to 6,000 projects, 7.5 million lots, and 6 million acres.

It also is known that only a portion of all recreational lots are found in subdivided recreational land projects. Many more are found as scattered lots sold off by individual land owners during the past many decades.

A national opinion survey by Opinion Research Corporation of Princeton, New Jersey, found that 8.5 percent of all households in 1973 owned a recreational lot. In absolute terms, this represents some 5.4 million lots. It is impossible to accurately estimate the total number of both sold and unsold recreational lots. However, some surveys indicate that only between 1/3 and 1/2 of all subdivided recreational lots have been sold. If this is true, it would mean that somewhere between 12 and 15 million recreational lots currently exist in this country, which is probably a conservative estimate.

Vacation homes

For vacation homes, the most reliable figures on existing stock are available from the 1970 United States Census of Housing. Frequent estimates have been made by other researchers, but they represent only fragmentary, educated guesses. Unfortunately, not even the Census has provided a well-defined count of vacation homes.

Within the vast array of information from the Census are 2 sets of data that relate directly to vacation housing. The first set is concerned with the vacation homes themselves.[1] The second set is concerned with the number of households which own vacation homes.[2] Thus, the second set of data shows numbers of households (i.e., families), while the first set shows a physical count of housing units.

In looking at the two Censuses, we find that the count for the physical units themselves is only 2,143,434 (U.S. Bureau of the Census 1972). On the other hand, the count of households owning vacation homes is 2,889,771 (U.S. Bureau of the Census 1972). It is the author's opinion that the latter number more closely approximated the true extent of the existing market in this country as of 1970 since it compares favorably with previous estimates from other surveys, including: (1) 1,897,882 "vacation" homes from the 1960 Census of Housing; (2) 2,350,000 households owning "second" homes from a 1964 Michigan Survey Research Center Study (Lansing 1964); and (3) 2,970,000 households owning "vacation" homes from an American Telephone and Telegraph Company Study in 1965. If assuming an approximate increase of 150,000 new homes during the past few years, it appears the total standing stock of vacation homes in the United States is now about 3.5 million. This would mean that slightly over 5 percent of all households own a vacation home, and that this type of unit accounts for slightly less than 5 percent of the total housing stock.

As shown in Table 2, over 50 percent of the vacation homes are found in only 10 states, with almost 1/3 being in the five states of Texas, Michigan, New York, Wisconsin, and California. For the most part, states with large numbers of vacation homes have some major recreational amenities, contain or are in close proximity to established metropolitan areas, or are very large in area.

Table 2.--Distribution of Vacation Homes, By State, 1970

State	Total Housing Units	Vacation Homes [a]	Percent of Total Housing Units	Percent of Total Vacation Homes (% of 2,143,434)
U.S.	68,418,094	2,143,434	3.1	100.0
AL	1,120,219	32,663	2.9	1.5
AK	88,428	6,705	7.6	.3
AZ	584,116	16,380	2.8	.8
AR	675,593	27,658	4.1	1.3
CA	6,994,533	96,639	1.4	4.5
CO	757,053	35,467	4.7	1.7
CT	980,849	15,325	1.6	.7
DE	180,212	8,134	4.5	.4
FL	2,526,536	41,735	1.7	2.0
GA	1,471,132	33,683	2.3	1.6
HI	216,066	3,053	1.4	.1
ID	244,681	15,335	6.3	.7
IL	3,701,866	38,722	1.1	1.8

Table 2.--(Continued)

State	Total Housing Units	Vacation Homes a/	Percent of Total Housing Units	Percent of Total Vacation Homes (% of 2,143,434)
IN	1,730,020	45,367	2.6	2.1
IA	958,560	29,192	3.1	1.4
KS	791,022	20,724	2.6	1.0
KY	1,064,436	33,332	3.1	1.6
LA	1,150,313	30,833	2.7	1.4
ME	397,140	73,562	18.5	3.4
MD	1,248,747	28,014	2.2	1.3
MA	1,890,319	51,746	2.7	2.4
MI	2,954,451	188,864	6.4	8.8
MN	1,276,082	83,855	6.6	3.9
MS	699,168	28,364	4.1	1.3
MO	1,673,332	64,330	3.8	3.0
MT	246,603	16,225	6.6	.8
NE	514,617	18,521	3.6	.9
NV	172,558	4,277	2.5	.2
NH	280,962	43,908	15.6	2.1
NJ	2,387,535	61,033	2.6	2.9
NM	325,715	14,527	4.5	.7
NY	6,298,385	181,138	2.9	8.5
NC	1,641,131	66,811	4.1	3.1
ND	256,222	14,301	5.6	.7
OH	3,465,161	47,936	1.4	2.2
OK	925,238	27,758	3.0	1.3
OR	744,602	20,946	2.8	1.0
PA	3,924,503	92,813	2.4	4.3
RI	317,193	9,974	3.1	.5
SC	812,148	36,242	4.5	1.7
SD	225,183	15,000	6.7	.7
TN	1,300,183	32,680	2.5	1.5
TX	3,825,299	130,580	3.4	6.1
UT	315,734	7,979	2.5	.4
VT	165,068	27,291	16.5	1.3
VA	1,492,887	46,525	3.1	2.2
WA	1,220,447	45,010	3.7	2.1
WV	597,266	26,230	4.4	1.2
WI	1,472,257	100,336	6.8	4.7
WY	116,323	5,711	4.9	.3

[a] "Vacation Homes" are enumerated by combining the United States Bureau of the Census categories, "Rural Seasonal Vacant" and "Other Rural Vacant." This combination basically includes housing units which are intended for occupancy during only certain seasons of the year .

Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Housing, 1970, Detailed Housing Characteristics,(Washington, D.C. U.S. Government Printing Office, 1972), Final Report HC(1)-B1-52, Table 32.

At the other end of the spectrum are 18 states which contain less than 10 percent of the total vacation homes. For the most part, these are either: (1) isolated in location or very sparsely populated (e.g., Montana, Idaho, Utah, Wyoming, etc.); (2) void of many outdoor recreational amenities (e.g., Kansas, Nebraska, Nevada, etc.); (3) small in land area and highly urbanized (e.g., Connecticut, Rhode Island, Delaware, etc.).

All of the top 20 states contain some outstanding attractions important for the location of vacation homes. Only Missouri and Colorado do not have frontage on an ocean, the Gulf of Mexico, or the Great Lakes. Eight have mountains to provide year-round recreation, and most have a good climate. Also, all top 20 states are located fairly close to large metropolitan areas. When combining these factors, it becomes apparent that population density is not the only location determinant. Of course, many of the same amenities which attract vacation home buyers also attract permanent residents. When considering this fact, it is interesting to note that most of the top 20 states in the absolute ranking increased considerably more in total population between 1960 and 1970 than did the lower 30 states.

Another way of analyzing the distribution of vacation homes is to calculate the percentage of total housing units comprised of vacation homes in each state. In looking at the relative comparisons between vacation homes and total housing units in Table 2, it is noted that only 3.1 percent of all housing units in the United States are classified in the 1970 Census as "vacation homes."

On an individual state basis, the three New England states of Maine, Vermont, and New Hampshire had rates more than twice as high as any other state. Here, year-round population density is low, and vacation homes have been accumulating for decades due to a combination of outdoor recreational amenities and close proximity to large metropolitan areas. In fact, except for Michigan, the top 20 states are generally rural and have relatively small populations.

The 1970 Census of Population included for the first time extensive data describing the owners of vacation homes. These data are "historical" in nature in that the 1970 Census count represents years of accumulation. In other words, the data describe persons already owning vacation homes instead of those who are currently buying or even, more importantly, those who plan to buy in the future. Thus, the count represents thousands of families who have owned vacation homes for many years. Significant variations most assuredly occur between the different sets of buyers, but it is not possible to determine these differences in any great detail.

The 1970 Census only asked questions about vacation home ownership and neglected to include anything on recreational lot ownership, so that few insights are available on ownership patterns for recreational lot owners.

The Census data show that the vast majority of owners (68.0 percent) reside within SMSAs, and that 31.0 percent reside within central cities. However, the rate of ownership (4.1 percent) is lower for central city residents than for any other area. This, of course, is due to the fact that central city populations are weighted by a great number of low-income families who are non-participants in the vacation home market. Some 33.3 percent of all households in the United States live in central cities, whereas only 31.4 percent of all vacation home owners do. However, if family income were cross-tabulated with location, it would probably show that the rate of ownership among higher-income families living in central cities is considerably higher than for comparable income families living elsewhere.

Rate of vacation home ownership is highest (4.8 percent) in the urban balance, which is caused by the high percent of affluent families living in suburbs in comparison with the overall population in those areas. The rate of vacation home ownership outside SMSAs (4.7 percent) also is higher than the national average. Here, the reason is not desire to escape the urban disamenities but, more importantly perhaps, the closer proximity and ease of travel between primary home and vacation home. In other words, families living outside SMSAs for the most part do not encounter congested weekend traffic and find it easier to get back and forth to the vacation home.

The concentration of vacation home owners within a few states is quite evident as shown in Table 3. The top five states (New York, California, Michigan, Texas, and Pennsylvania) contain over 1/3 (36.7 percent) of all households in the country who own vacation homes. The top 10 states (adding Florida, Massachusetts, Illinois, Ohio and New Jersey) contain over 1/2 (56.7 percent) of the vacation home households. On the other end of the spectrum, the bottom 5 states contain only 1.5 percent of the total and the bottom 10 states only 3.8 percent. For the most part, there is a direct relationship between population size and number of vacation home owners.

Table 3.--Distribution of Households Owning a Vacation Home, By State, United States, 1970

State	Total Households	Households Owning a Vacation Home[a/]	Percent of Total Households	Percent of Total Households Owning a Vacation Home (% of 2,889,771)[a/]
United States	63,446,641	2,889,771	4.6	100.0
Alabama	1,034,113	43,108	4.2	1.5
Alaska	79,059	8,389	10.6	.3
Arizona	539,157	36,674	6.8	1.3
Arkansas	615,424	19,863	3.2	.7
California	6,573,861	264,342	4.0	9.1
Colorado	690,928	34,775	5.0	1.2
Connecticut	933,269	45,777	4.9	1.6
Delaware	164,804	9,517	5.8	.3
District of Columbia	262,538	12,905	4.9	.4
Florida	2,284,786	146,020	6.4	5.1
Georgia	1,369,225	50,380	3.7	1.7
Hawaii	203,088	8,463	4.2	.3
Idaho	218,960	12,641	5.8	.4
Illinois	3,502,138	110,933	3.2	3.8
Indiana	1,609,494	59,506	3.7	2.1
Iowa	896,311	30,104	3.4	1.0
Kansas	727,364	22,925	3.2	.8
Kentucky	983,665	32,601	3.3	1.1

Table 3.--(Continued)

State	Total Households	Households Owning a Vacation Home[a]	Percent of Total Households	Percent of Total Households Owning a Vacation Home (% of 2,889,771)[a]
Louisiana	1,052,038	46,877	4.5	1.6
Maine	302,923	35,666	11.8	1.2
Maryland	1,175,073	42,990	3.7	1.5
Massachusetts	1,759,073	112,962	6.4	3.9
Michigan	2,653,059	185,778	7.0	6.4
Minnesota	1,153,946	77,099	6.7	2.7
Mississippi	636,724	20,154	3.2	.7
Missouri	1,520,567	55,750	3.7	1.9
Montana	217,304	15,983	7.4	.6
Nebraska	473,304	15,207	3.2	.5
Nevada	160,052	8,139	5.1	.3
New Hampshire	225,378	17,345	7.8	.6
New Jersey	2,218,182	101,680	4.6	3.6
New Mexico	289,389	18,671	6.5	.6
New York	5,913,861	289,164	4.9	10.1
North Carolina	1,509,564	56,265	3.7	1.9
North Dakota	181,613	10,562	5.8	.4
Ohio	3,289,432	105,129	3.2	3.6
Oklahoma	850,803	31,151	3.7	1.1
Oregon	691,631	30,032	4.3	1.0
Pennsylvania	3,702,304	153,311	4.1	5.4
Rhode Island	291,965	13,337	4.6	.5
South Carolina	734,373	34,829	4.7	1.2
South Dakota	200,807	9,410	4.7	.3
Tennessee	1,213,187	38,451	3.2	1.3
Texas	3,433,996	164,785	4.8	5.7
Utah	297,934	12,222	4.1	.4
Vermont	132,098	11,835	9.0	.4
Virginia	1,390,636	53,133	3.8	1.8
Washington	1,105,587	65,376	5.9	2.3
West Virginia	547,214	23,999	4.4	.8
Wisconsin	1,328,804	76,216	5.7	2.6
Wyoming	104,600	7,340	7.0	.3

[a] "Vacation home" is considered synonymous with the United States Bureau of the Census category "second home," which is defined as, "...a single family house, vacation cottage, hunting cabin, ski lodge, etc., which is owned and held for use sometime during the year by the owners or members of his household."

Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Housing, 1970, Detailed Housing Characteristics (Washington, D.C., U.S. Government Printing Office, 1972) Final Report HC(1)-B1-52, Table 37.

Of the top 10 states in terms of absolute number of vacation home owners, only Michigan remains in the top 10 for rate of vacation home ownership. Of the top 20 in terms of absolute number of vacation home owners, only 5 (Michigan, Massachusetts, Florida, Washington, and New York) reappear in the top 20.

The primary reason for this variation is quite simple. The most populous states have the greatest number of vacation home owners simply because there are more people to participate in the market. At the same time, however, these densely populated states usually contain several large urban centers. Due to population shifts and economic opportunities, most urban centers contain high proportions of low- to middle-income households that normally are eliminated from participation in the vacation home market. All of these households are included when calculating ownership rates and explain the lower ranking for most of the densely populated states.

States ranking highest in terms of vacation home ownership tend to be concentrated in a few regions of the country. Specifically, these regions are: (1) Northern New England, where vacation home ownership has traditionally been a cultural occurrence; (2) the Great Lakes states; and (3) the Rocky Mountain states. On the other end of the spectrum are many of the southern and mid-western states where average incomes are relatively low and few natural recreational amenities exist.

Other recreational properties

Due to either their recentness and/or smallness, it is almost impossible to estimate the existing magnitude of the markets for resort condominiums, timeshares, and undivided interest. According to most reliable estimates, as will be expanded upon in the following section, it is estimated that roughly 600,000 wholly owned resort condominium units exist in this country. At the same time, it is known that perhaps only a handfull of undivided interest projects exist; probably not involving more than 100,000 owners.

The timeshare market has burgeoned tremendously since its initiation in the late 1970's. Increased demand for timeshare is evidenced by the following gross estimates:

Year	Existing Timeshare Projects	Annual Dollar Volume	Existing Consumers
1977	175	$125 million	100,000
1978	275	$300 million	200,000
1979	350	$750 million	300,000

FUTURE DEMAND FOR RECREATIONAL PROPERTIES

Methodology

Any numerical projections for recreational properties are certainly subject to question. Since recreational property is not a basic necessity such as food, clothing, and primary lodging, it is open to major changes in demand. Most certainly, demand decreases during economic recessions and increases during periods of economic expansion.

As noted earlier, demand for new recreational property has decreased tremendously since 1973 due to negative publicity, market saturation, negative status, environmental concerns, public regulations, the energy crisis, etc. While it appears that demand has again increased since 1976, it seems unlikely that it will ever again reach the proportions realized between 1967 and 1973. At any rate, all numerical projections made in 1980 will be subject to many unforeseen parameters in the future. The reader is cautioned to remember these limitations in applying the following projections for the three major submarkets of recreational lots, detached vacation homes, and resort condominiums. No attempt is made to project demand for the timeshare and undivided interest projects, although it is quite possible that in future years, demand for these commodities will far outstrip the other three.

Steps involved in making the projections include the following:

1. The estimated number of households for the 4 Census regions in 1980 and 1985 were derived from the Bureau of the Census (U.S. Bureau of the Census, 1973).

2. Propensity for future ownership of recreational properties was obtained primarily from a nationwide opinion survey conducted by the Opinion Research Corporation of Princeton, New Jersey. The survey was conducted on a personal interview basis in the homes of the respondents. It involved a weighted sample of 7,190 households throughout the United States.

3. These numerical projections were then reconsidered in light of several other nationwide projections of future demand for recreational properties. These projections were less detailed in regard to type of property or future data and were used simply as benchmarks to ascertain whether the projections derived in (2) were reasonable.

4. The 4 sets of projections were then integrated with subjective interpretation based upon knowledge and insights gained from supporting research. Though the discrepancies between the various sets of projections were surprisingly small, the final projections are somewhat more conservative than those in the 4 mentioned sets of projections. It is felt that persons tend to be overly optimistic about their future plans for purchasing recreational properties. In many instances, such plans are never realized and the discretionary income is allocated to other household items. Recent literature published concerning the market also was reviewed.

Numerical projections

Table 4 presents demand in the United States for various types of recreational properties (as an aggregate), vacant recreational lots purchased for the purpose of building a future vacation home, recreational lots occupied by a single-family detached vacation home, and resort condominium units. Both absolute and relative figures are included in the table. Table 4 presents absolute projections for the four types of recreational properties on a regional basis, while Table 5 presents the same material with relative figures.

Table 4.--Demand for Recreational Properties By Type of Property, United States, Estimated for 1980 and Projected for 1985.

Type of Property	1980	1985
Number of Households	77,000,000	84,000,000
Number of Households Owning Recreational Properties	8,085,000	10,080,000
Percent of Total Households	10.5	12.0
Number of Households Owning Vacant Recreational Lot for Speculation/Investment	1,694,000	2,100,000
Percent of Total Households	2.2	2.5
Number of Households Owning Vacant Recreational Lot for Future Building	1,309,000	1,680,000
Percent of Total Households	1.7	2.0
Number of Households Owning Single Family Detached Vacation Home	4,466,000	5,376,000
Percent of Total Households	5.8	6.4
Number of Households Owning Resort Condominium Unit	616,000	924,000
Percent of Total Households	.8	1.7

For 1980, it is estimated that about 8,085,000 households (or about 10.5 percent of the total) in the United States own one of the 4 primary types of recreational property. Most of these properties (almost 4 million) represent a recreational lot occupied by a single-family detached vacation home. The type with the lowest frequency was the resort condominium (about 400,000).

It is projected that by 1985, the number of recreational properties will increase to over 10 million, which means that about 12 percent of all households will own such property. Significant increases will occur between 1980 and 1985 as the post World War II baby boom reaches the time in the family life cycle when propensity for purchase of recreational property is greatest.

In terms of the type of recreational properties to be demanded, it appears that least increase will be realized in the demand for vacant recreational lots, especially those purchased primarily for speculation or investment purposes. Most significant increases in demand will be for recreational shelter, both single-family detached vacation homes and resort condominiums. In absolute terms, the greatest increase will occur in the detached units, from about 4.5 million to about 5.4 million. In relative terms, the greatest increase will occur for resort condominiums, increasing from .8 percent to 1.7 percent of the households.

On a regional basis, as shown in Table 5, a wider dispersion will occur, partly due to regional shifts in population and household formation and partly due to changing regional propensities for purchase of recreational properties.

It is anticipated that relatively little increase in demand will occur in the Northeast for recreational lots purchased only for speculation or investment purposes. At the same time, the most significant growth for this commodity will occur in the West. Such conditions reflect availability of land, saturation of the market, etc. Similar regional trends are projected to occur for recreational lots purchased for future building of a vacation home, although the variations are less severe. For the latter type of recreational property, most significant increases in absolute terms are anticipated in the South and fewest increases in the Northeast.

For single-family detached vacation homes, the greatest absolute growth will occur in the South and West. The anticipated regional growth patterns for resort condominium units will be even more exaggerated, with very significant increases to occur in the South and West. Such patterns again reflect market saturation, availability of land, lack of consumer opportunity, etc.

Table 6 presents changes in the percent of total households in the region which will own the various types of recreational properties. These figures were derived from the previously mentioned surveys and were utilized in the preparation of Table 6.

Table 5.--Demand for Recreational Properties, By Type of Property, By Region, United States, Estimated for 1980 and Projected for 1985.

	A. Number of Households (Percent of Total in Parenthesis)	
Region	1980	1985
Northeast	16,600,000 (21.5)	17,500,000 (21.0)
North Central	20,500,000 (26.0)	22,000,000 (26.0)
South	25,000,000 (32.5)	28,000,000 (33.0)
West	16,500,000 (20.0)	17,000,000 (20.0)
United States	77,000,000(100.0)	84,000,000(100.0)

	B. Number of Households Owning Recreational Properties	
Region	1980	1985
Northeast	1,746,400 (21.6)	2,167,200 (21.5)
North Central	1,827,200 (22.6)	2,318,400 (23.0)
South	2,482,100 (30.7)	3,255,600 (32.0)
West	2,029,300 (25.1)	2,683,800 (23.5)
United States	8,085,300(100.0)	10,080,800(100.0)

	C. Number of Households Owning Vacant Recreational Lot for Speculation/Investment	
Region	1980	1985
Northeast	347,200 (20.5)	336,000 (16.0)
North Central	406,600 (24.0)	420,000 (20.0)
South	457,400 (27.0)	703,500 (33.5)
West	482,800 (28.5)	640,500 (30.5)
United States	1,694,000(100.0)	2,100,000(100.0)

	D. Number of Households Owning Vacant Recreational Lot for Future Building of Vacation Home	
Region	1980	1985
Northeast	255,600 (18.0)	285,000 (17.0)
North Central	274,900 (21.0)	369,600 (22.0)
South	432,000 (33.3)	571,200 (34.0)
West	366,500 (28.0)	453,600 (27.0)
United States	1,309,000(100.0)	1,680,000(100.0)

	E. Number of Households Owning Single Family Detached Vacation Home	
Region	1980	1985
Northwest	1,036,100 (23.2)	1,236,500 (23.0)
North Central	1,107,600 (24.8)	1,290,200 (24.0)
South	1,357,600 (30.4)	1,585,900 (29.5)
West	964,700 (21.6)	1,263,400 (23.5)
United States	4,466,000(100.0)	5,376,000(100.0)

	F. Number of Households Owning Resort Condominium Unit	
Region	1980	1985
Northeast	129,400 (21.0)	194,100 (21.0)
North Central	163,200 (26.5)	240,200 (26.0)
South	194,000 (31.5)	300,300 (32.5)
West	129,400 (21.0)	189,400 (20.5)
United States	616,000(100.0)	924,000(100.0)

Table 6.--Demand for Recreational Properties, By Type of Property, By Region, Unites States, Estimated for 1980 and Projected for 1985.

A. Percent That Househoulds Owning Recreational Properties Are of Total Households

Region	1980	1985
Northeast	10.5	12.4
North Central	8.9	10.5
South	9.9	11.5
West	12.3	13.9
United States	10.5	12.0

B. Percent That Households Owning Vacation Recreational Lot For Speculation/Investment Are of Total Households

Region	1980	1985
Northeast	2.0	1.9
North Central	1.9	1.9
South	1.8	2.5
West	2.9	3.8
United States	2.2	2.5

C. Percent That Households Owning Vacant Recreational Lots for Future Building of Vacation Home Are of Total Households

Region	1980	1985
Northeast	1.4	1.6
North Central	1.3	1.7
South	1.7	2.0
West	2.2	2.7
United States	1.7	2.0

D. Percent That Households Owning Single Family Detached Vacation Homes Are of Total Households

Region	1980	1985
Northeast	5.2	7.1
North Central	5.4	5.9
South	5.4	5.7
West	5.8	7.4
United States	5.8	6.4

E. Percent That Households Owning Resort Condominium Units Are of Total Households

Region	1980	1985
Northeast	.8	1.1
North Central	.8	1.1
South	.8	1.1
West	.8	1.1
United States	.8	1.1

Influencing Factors

Despite the preceding effort, it is difficult to derive any concrete conclusions about future demand for recreational properties. It appears that the realization of short-term demand will be definitely affected by a series of issues which may or may not be in evidence several years from now. Such current crises facing the recreational land and vacation housing industries as a bad public image, unavailability of financing both for the developer and consumer, the exorbitant costs of building supplies, etc., may continue to exist in the future. However, these items all appear rather inconsequential when assuming a long-range perspective of the markets. For instance, financing rates and availability have traditionally changed drastically within short periods of time; the negative image could be reversed if and when the industry begins to monitor its members; and costs of building supplies and labor have always fluctuated according to the economic climate of the country.

However, when stepping back and considering the long-range future of the markets for recreational properties, a somewhat more complicated picture is portrayed, basically because the influencing parameters become more hazy and confusing and simultaneously more critically influential.

Many long-range indicators portray an optimistic future for increased demand. For instance, it is anticipated that additional discretionary income will become available not only in greater amounts, but also for a larger proportion of the population. Leisure time also will increase and, most significantly, will be available in larger aggregations such as three-day weekends or for extended weeks or even months. Retirement will be possible earlier, and older people will live longer. They also will have more monetary resources available to them, be healthier, and more acquainted with recreational and travel experiences from past participation. The post-World War II baby boom will be reaching the age in the 1980's when propensity for purchase of recreational properties is highest. Interest in nature, ecology, the natural environment, and participation in so-called "healthy and youthful" outdoor recreational activities will continue to increase for wider segments of the population. Thus, most predictions for the so-called opportunity and facilitating factors portray a situation where more and more families will be able to purchase recreational properties.

While these variables are relatively easy to project into the future, at least in numerical terms based upon past trends, a series of other variables also will be very influential. For the most part, these variables are more subjective and thus more difficult to quantify. Their influences will be more subtle but perhaps more critical for long-range future demand for recreational properties.

For instance, the uncertainties of the international situation complicate projections for future personal income in the United States. If the less developed nations of the world begin to demand a more equitable distribution of wealth and resources, either through political or economic coercion, negative effects will most certainly be realized on the GNP of this country. An increasingly larger segment of the population in the United States may perceive the work ethic in a different light in the future and be less motivated toward higher incomes and associated availability of goods and services. Thus, fewer persons may actually have the anticipated discretionary income to buy a second home just for seasonal-recreational purposes, at least in the manner in which many leisure homes are being produced today.

The concern with ecology and preservation of a quality environment does not appear to be a passing fad, but rather one that will continue to increase in the future. More and more communities and states will consider no-growth or limited-growth policies. More and more decision-makers will become more sophisticated about the land development process and will use criteria to determine what type of new land development will prove beneficial to their community in the long-range future. No longer will the only criterion be the possibility of increased contribution to immediate return to the property tax base, but rather more subtle criteria will be used such as costs and benefits related to social, environmental and long-term economic impacts.

Quality land in appropriate proximity to population centers will become less available and much more expensive. More of this land will be maintained in the public domain or placed under much stricter and more rational public control. More land in marginal productivity might have to be used for the support of agriculture and other primary industry in order to satisfy world demands for a more equitable distribution of wealth and resources.

The energy crisis most certainly will effect the future of the market for recreational properties. In the foreseeable future, it seems likely that certain segments of society including legislators and the public at large will question the morality and rationality of allowing some persons to own and develop property simply for seasonal-recreational purposes. The question will most certainly be raised as to why should a select group of people be able to afford two relatively expensive homes when a much larger segment of society has never been able to realize the government's 30-year old goal of a "safe and decent" living environment.

Related to the inequitable distribution of wealth in this country are the current income tax practices which in some instances make owning a condominium or rental vacation home a very profitable venture. It would appear that public pressure will influence additional restrictions to be made in regard to these allowed tax benefits and write-offs.

A whole series of additional changes could occur in the cultural context of our society which might affect the future markets for recreational properties. It appears that a growing segment of the population is less motivated by status attainment and the fee simple ownership of real property. Although perhaps currently restricted to the youth, there are indications that such changes slowly are penetrating other age-groups. At the same time other subtle factors appear to be gaining in popularity. Included are such difficult to define items as sense of community, togetherness, sharing, family, concern with nature, etc. These factors do not necessarily imply changes in demand for recreational properties, but perhaps a change in the type of property which is of interest to the consumer.

Related to these comments, is the fact that our society seems to be ever-increasing in its demand for variety, flexibility, desire for new experiences, etc. More attractions are becoming available for the utilization of leisure time, and the public seems to be responding in terms of buying these new concepts and commodities. Travel clubs, camping clubs, new concepts in land ownership, etc., all appear to be increasing in popularity. The opportunity to experience a variety of recreational activities at relatively inexpensive costs has definite implications for the recreational land industry as we know it today. It would appear that the singular alternative of the fee-simple, single-family detached house on a half-acre lot in a location with one limited set of recreational activities will encounter more and more consumer competition in the future from other forms of recreational pursuits.

In sum, the future for recreational properties is complex. The continuation of past trends and the converging of time, money and attitude seem to suggest a growing market. However, certain unpredictable, long-range factors, such as redistribution of wealth and a heightened energy crisis, may dampen the possibility for an ever-expanding, high-volume market.

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Footnotes

1/According to the Bureau of the Census, a vacation home (called second home in the Census), "...may be a single-family house, vacation cottage, hunting cabin, ski lodge, etc., which is owned and held for use sometime during the year by the owner or members of his household." Second homes may also be owned in partnership with members of a different household. The figures indicate second homes which are sometimes rented or leased on a short-term basis to other persons but are principally held for the owner's occasional use during the year. The statistics refer to the number of households that own (one or more) second homes. The data therefore, do not reflect the number of owned second homes.

2/The count for vacation home households represents both an undercount and overcount due to: (1) the fact that while a household could own more than one vacation home, the actual number does not appear; and (2) the fact that while more than one household may jointly own the same vacation home, each family could claim it as their own for purposes of the Census count. It is impossible to determine from the data whether the undercount or overcount is more significant or whether, in fact they come close to balancing out one another.

TRENDS IN HIKING AND BACKCOUNTRY USE[1]

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Pedestrian movement in backcountry settings has increased dramatically in the past 20 years. But the rate of increase seems to be levelling. Some indicators of this trend include the publishing business, the number of equipment manufacturers and outlets, the number of backcountry outfitters, and consultation with entrepreneurs.

For more than a decade there has been an increase in the number of people hiking and camping in backcountry areas. Are there really more people hiking and backpacking or do the same number of people hike and camp more often? Is the trend continuing upward or is it changing? Each year backcountry managers record the use that these areas receive. This data is useful as a guideline for the next year's operational procedures, budgetary concerns and staff assignments. Rarely, however, does the opportunity arise for managers to compare data and establish long-term trends for the use of a large regional area. Such a comparison could provide valuable information for backcountry managers in anticipating their future needs. This paper addresses the issue of trends in backcountry use in the northeast, identifies some indicators of national hiking and backpacking trends, and speculates on possible future pedestrian activities. As was the case with most of the other papers, it was very difficult to assemble comparable and meaningful data on hiking and backpacking trends.

A public survey conducted in 1965 by the U.S. Bureau of Census for the BOR showed that 9.9 million Americans hiked or backpacked. A similar survey, done in 1977 by Opinion Research Corp. under contract to the HCRS (BOR's successor) revealed that 28.1 million Americans backpacked or hiked--nearly a threefold increase.

Similar increases are reflected in actual visitor-use statistics. For example, in the White Mountains of New Hampshire, records of visitors to backcountry facilities are maintained by the Appalachian Mountain Club (AMC). In the 19-year period from 1960 to 1978, AMC hut use quadrupled, increasing from approximately 7,000 visitor nights to approximately 28,000 visitor nights per year (Table 1). In that period, average hut use increased by over 1,000 people per year. Part of this increase is due to an extended hut season and AMC officials feel that the general increase in hut use may have begun to plateau. Comparing use increases for the past ten years with use increases for the past four years shows that use has increased at a much slower rate in the past four than the past ten years.

Records of shelter and tentsite use for the months of July and August in the White Mountains go back only to 1974. Shelter use has remained relatively stable and it is difficult to establish any trends. In 1974, shelter use ran unusually high and was then followed by lower use. Now use is fluctuating around an average of 7,500 visitors. Most of the drop in the 1979 shelter use occured during the month of July. It is speculated that gasoline uncertainties accounted for most of this decrease.

The Allagash Wilderness Waterway in Maine has records dating back to 1966. Visitor use of this area increased rapidly compared to other northeastern areas such as Baxter State Park, White Mountains, and Green Mountains. However, there was a drop in use in 1974. The rapid increase in use during the early seventies may have been due to the state acquisition of the Waterway in 1966 resulting in greater publicity. Starting in 1973, however, the Allagash Advisory Committee suggested that publicity agents not publicize the Allagash, that a fee system be established in 1974 to discourage large group use, and that restrictions be imposed to limit party size to twelve persons or fewer. This led to the leveling and decline in use during 1973 and 1974. However, in the next four years, an upward trend was again established. Despite this recent increase measures taken by the Allagash Advisory Committee appear not only to have initially decreased visitor days, but also to have decreased the rate of the following increase.

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At Baxter State Park in Maine, use decreased dramatically between 1973 and 1977. This also was the result of management restrictions. Seasonal use decreased at a rate of approximately 900 people per year. However, in 1978 the trend changed and instead of the expected decrease of 900, use increased by 2,233 compared to 1977.

In Vermont, records for eight of the Green Mountain Club's (GMC) shelters for the months of July and August show use peaking in 1975. Then a downward trend began. GMC officials feel that this trend may be the result of new camping facilities that were added to the Club's total shelter system. They do not notice a drop in day use, but agree that the rate of increased hiker and backpacker traffic has leveled considerably. They observed a distinct extension of the hiking season into the foliage season.

At the national level, the U.S. Forest Service has kept records of national forest recreation use by types of activities. This data is summarized in Table 2. As an activity, hiking and mountain climbing has increased steadily from 4 to 11 million visitor-days between 1966 and 1979. As a portion of total recreation use on all national forests, it seems to be increasing in popularity. In 1966, hiking and mountain climbing was 2.8 percent of the total use; by 1970, it had gone up to 3.2 percent; in 1975, it was 4.5 percent; and by 1979, it was 5.1 percent of total forest recreation use.

The only other activity that has captured this increasingly large share of the total national forest system recreation use market is winter sports. It increased from 3.5 percent in 1966, to 3.8 percent in 1970, to 4.7 percent in 1975, to 6.6 percent in 1979. Projections indicate that snow-based activities will continue to dominate the growth scene in the 1980's, followed closely by water and then land-based activities.

The overall long-term trends seem to confirm the folk wisdom that hiking and backcountry

Table 1.--Visitor use of backcountry areas.

Year	White Mountains New Hampshire		Allagash Waterway Maine	Baxter State Park Maine	Green Mountains Vermont
	AMC Huts	AMC Shelters (JUL & AUG)			8 GMC Shelters (JUL & AUG)
1960	6,927				
1965	13,176				
1966	14,722		4,141		
1967	12,861		4,539		
1968	13,501		3,786		
1969	14,411		4,820		
1970	17,299		5,460		
1971	18,856		6,345		
1972	21,693		8,260		
1973	23,587		8,337	11,684	4,726
1974	24,471	8,187	7,477	10,811	5,053
1975	25,719	7,196	9,477	9,683	5,765
1976	28,426	6,983	8,619	8,983	6,391
1977	26,915	7,705	9,278	7,988	5,138
1978	28,032	7,435	9,734	10,221	5,067
1979		6,250	8,932	10,082	4,816
					4,449

use have been increasing over the past decade, but that they may be stabilizing. It is clear that year to year trends do not show any consistency from one recreation area to another, but that over the long-term, most areas have experienced this growth and leveling-off.

The causes for the levels of use and their changes over time are not at all clear. It is a complex interaction of available leisure time, money, accessibility, faddism and more. Each individual processes these variables and makes his decision to go hiking or not. Moreover, this long-term pattern of growth and its more recent leveling-off does not in itself presage future use levels. The leveling-off may continue, dip into a long-term downtrend or merely mark a hesitation in longer term growth. One year does not make a trend. Even two or three years do not. The year-to-year changes are as likely to be in one direction as in the other.

Table 2.--National forest recreation use by activity (thousands of visitor-days)

Activity	1966 Use	1966 Percent of Total	1979 Use	1979 Percent of Total
Camping	39,564.5	26.2	54,780.3	24.9
Recreational travel (mechanical)	31,301.1	20.7	49,536.5	22.5
Fishing	14,709.1	9.7	16,776.0	7.6
Hunting	13,118.6	8.7	15,327.9	6.7
Recreational residence use	7,960.5	5.3	6,651.6	3.0
Picnicking	7,887.5	5.2	8,874.2	4.0
Winter sports	5,219.6	3.5	14,485.0	6.6
Hiking & mountain climbing	4,277.8	2.8	11,176.9	5.1
Organizational camp use	4,287.2	2.8	4,086.8	1.8
Boating	4,006.5	2.6	7,072.1	3.2
Viewing scenes & sports entertainment	3,926.8	2.6	8,321.1	3.8
Resort use	4,003.5	2.6	4,308.9	1.9
Swimming & scuba diving	3,076.9	2.0	4,632.3	2.1
Horseback riding	2,065.9	1.4	3,166.4	1.4
Visitors information services	2,058.8	1.4	4,121.8	1.9
Gather forest products	1,241.7	.8	3,916.1	1.8
Nature study	796.4	.5	1,210.9	.5
Waterskiing & other water sports	641.0	.4	888.0	.4
Games & team sports	585.5	.4	832.8	.4
Total	150,728.9	99.6	220,165.6	99.6

So how does one find indicators of national hiking and backpacking trends, accurately assess them, and meaningfully interpret what they tell us? One way might be to check the marketplace--the place that might profit from an increase in hiking and backcountry interest.

One of the shops in this marketplace is the publishing business. Magazines and books about this subject can be found in almost any bookstore. This was not so a decade or two ago. Publishers such as Scribners, Funk and Wagnalls, Harper and Row, and many others are answering the demand for books on hiking and backpacking. Periodicals such as Appalachia Bulletin, Sierra Club Bulletin, and Living Wilderness have been joined by Backpacker/Wilderness Camping, Mariah, New England Outdoors and Nordic Skiing. Tote books, walk books, and hike books describe thousands of hikes people can take in just about every state in the Nation.

Other shops in this marketplace are the equipment industry and outfitters. Where once hiking and backpacking equipment could be obtained only in large cities or through a few mail-order houses, now many hardware stores carry equipment, many small towns have a sporting goods store and the long-established mail-order houses are under severe competition from hundreds of newly-established businesses. Similarly, perusal of any hiking or backpacking magazine invariably provides one with numerous opportunities for signing up with backcountry and wilderness outfitters. All these entrepreneurs have recognized an expanding market and, in the American tradition, are here to satisfy the demand for these goods and services.

A third way to conjure hiking and backpacking trends is to consult with a panel of people "in the know". If nothing more, this technique should tell us how much agreement or disagreement there is about the future.

James Kern, president of the American Hiking Society, recognizes that the bloom is off the hiking fad, that membership in hiking organizations is not increasing at the same rate it was a few years ago, but that people joining clubs these days are probably doing so after making a more sincere appraisal of their interest in hiking and the individual club.

William Kemsley, Jr., editor of Backpacker/Wilderness Camping magazine also sees only a slight yearly increase in the number of hikers and backpackers. But he foresees a definite increase in snowshoeing, ski camping and family backpacking. As we get more and more into the 1980's, he sees greater interest in "group" camping in the backcountry and use of leantos, shelters, and White Mountain-type "huts".

David A. Richie, project manager of the Appalachian Trail for the NPS, sees an expanding role for volunteers in protection and management of trails and an increase in the responsibilities of trail clubs. He sees them helping decide where trails will go, what land will be bought, and monitoring activities of visitors and landowners to head off conflicts. He also sees them expanding their presence on trails to educate and influence hikers and backpackers on compatible behavior, and taking on added maintenance and construction work, even offering to replace government crews in national parks and forests.

William E. Rennebohm, the Trails Coordinator of the HCRS sees greater use of urban trails, multi-purpose trails, and health or exercise trails. He also feels that low-cost public transportation to distant trails is not beyond the realm of possibilities.

There seems to be general agreement that hiking and backcountry use has experienced a short-term shot in the arm, that the immediate effects of that shot are wearing off, and that the growth rate in this activity will be much less dramatic for the next few years. In summary, we see the American experience paralleling the European experience in pedestrian activity. We see more day hiking and more families hiking. We see more general awareness of walking in our lifestyle, even a trend toward walking as a legitimate mode of transportation for short commutes. We see more of an emphasis on development of the 50- to 250-mile trails rather than on the 1000-mile and over trails; and less emphasis on trail studies and more on-the-ground trail developments.

It seems clear that management policies which are designed to manage use, do in fact have that result. For example, the AMC Hut System, where it has become more and more important to make a reservation to assure oneself a bunk, does not exhibit the dramatic year to year shifts in use that the AMC shelters show. Likewise, Baxter Park's policy restricting use and the Allagash Waterway's policies for discouraging overuse.

Managers and recreationists, for the past decade, have had to cope with the problems posed by rapid increases in use. This has forced difficult decisions, sometimes necessarily made without much data. The problem has been to protect the resource in the face of this increased use. The opportunity now is at hand to review these decisions in the light of experience without the problem of immediate increases and to take stock. Which policies have been successful; which less so? What options should be pursued to make the next decade a successful one for both managers and recreationists?

TRENDS IN EMERGING AND HIGH RISK ACTIVITIES[1]

Robert G. White, Richard Schreyer and Kent Downing[2]

Abstract.--Newly emerging and high risk activities have increased markedly in the last generation, yet little is known about trends in participation. Factors such as technological innovation and creative experimentation with traditional activities appear to play a major role in the development of new activities. Christy's criteria for mass demand in recreation are used to examine the growth potential of different emerging activities. The participation histories of three characteristic activities--skydiving, sport ballooning, and hang gliding--are explored in detail. Trends in activity growth are also seen to be influenced by activity and risk sport image, and by potential for government regulation.

New recreational activities appear to be emerging at an exponential rate, particularly those involving an element of risk. Yet, little is known about either their participants or the activities. Where and how do new activities originate? What determines their popularity? What trends are evident? What special problems do they have?

THE EMERGENCE OF OUTDOOR RECREATIONAL ACTIVITIES

The origins of new activities can be traced to two different, though related sources: innovations in equipment or experimentation with participation.

Several activities owe their entire existence to the development of a specific type of equipment or to a breakthrough in equipment materials. In most cases, the critical technology has come from outside the recreational industry. The first hang gliders were adaptations of the Rogollo parawing, a design developed by a NASA engineer. SCUBA diving resulted from the invention of the aqualung, a piece of equipment originally intended for scientific and military purposes. For some activities, the right material was the essential missing ingredient. The kayak and the hot air balloon, for example, have existed for well over a hundred years, yet were rarely used for recreation. Nylon and fiberglass can receive much of the credit for changing that situation. New activities can also result from combining or modifying existing equipment. Surfing and skateboarding together with sailing have yielded board sailing and wind skating, respectively. The addition of motors to hang gliders has spawned the sport of microlight aviation.

Not all activities originate from equipment innovations, though specialized equipment tends to follow if an activity generates enough interest. Rather, a few individuals will explore new techniques and new environments, simultaneously, opening the way for new specialized patterns of participation. Rock climbers are making progress with solo ascents; skydivers are jumping from cliffs;

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[1] Paper presented at the National Outdoor Recreation Trends Symposium, Durham, NH, April 20-23, 1980.

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and SCUBA divers are seeking underwater caves. It is difficult to predict at what point these experiments will create spin-off activities, though the potential for growth likely parallels popularity for emerging activities in general. Three examples of currently emerging spin-offs are out-of-bounds skiing, speed skiing, and free climbing.

DETERMINANTS OF POPULARITY

Christy (1974) outlined five elements that he felt were important for predicting the popularity of a recreational activity, particularly those that would stimulate mass demand. The following sections will apply these criteria to evaluate the potential of several emerging activities.

Ease of Participation

A number of factors are subsumed under this element, including initial costs, operating costs, training, and environmental prerequisites. Although many of the emerging activities require expensive equipment relative to tennis or cross country skiing, they are fairly inexpensive when compared to activities that offer similar experiences. Before hang gliding, the only gliding or soaring aircraft were sailplanes which sell for $10,000 to $35,000. The upper end of the price range for today's hang glider is around $1500. The modern day hot air balloon is one-fourth the purchase price of a gas balloon (the traditional sport balloon) and costs approximately $50 to operate as opposed to $2000 per flight for gas balloons.

The subject of operating costs and hidden costs deserves further discussion. For some activities (hang gliding, board sailing, and rock climbing) the primary expense is equipment, followed by transportation to and from the recreational site. For others such as skydiving there are additional expenses: aircraft fuel and pilot fees.

As Christy points out, the nature of the necessary training can be an important variable for an activity's popularity. Is it short and pleasant or long and difficult? Board sailing involves little or no formalized training. Prospective enthusiasts can often rent a board and practice on their own at their own speed. Would-be skydivers, on the other hand, must adhere to a rigid training program that can be long and costly. To eliminate some of these difficulties, commercial schools (similar to the successful ski schools) have been established to streamline instruction and make it as comfortable as possible.

Environmental prequisites also affect capacity for growth. Board sailors can use a variety of water resources unsuitable for larger sailing craft; and hang glider pilots can fly almost anywhere without worrying about paved landing strips. At the other end of the spectrum, cave explorers and rock climbers are faced with the relative scarcity of adequate resources.

Desirable Image

It is no accident that Madison Avenue has capitalized on the eye catching qualities of hang gliding, river rafting, sport ballooning, and skydiving. In contrast to everyday life, they portray adventure, excitement, and challenge. The transatlantic balloon crossing, the man powered flight across the English Channel, and the conquest of Everest without oxygen were prime examples of individual achievement. Today's recreationists can likewise experiment with new activities in unfamiliar environments, challenging their own frontiers. Undoubtedly, these pursuits can have a powerful effect on self-image as well as on one's public image. The quality of that image, however, may range from envy to bewilderment to charges of being foolhardy and irresponsible. Perception of risk is often a focal point of these images. The influences of safety concerns and perceptions of risk will be discussed subsequently.

Ability for Strong Identification

According to Christy (1974:103), "there must be some paraphenalia, costume, badge or trophy that identifies its holder as a participant in that activity." Nearly all emerging would score high on this element, given the proliferation of t-shirts, hats, belt buckles, patches, and decals sporting slogans and manufacturers names. Distinctive equipment (large and small) can serve the same purpose. Hang gliders, kayaks, and hot air balloon baskets are difficult to miss on car racks and trailers. On a smaller scale, channel locks hung from belts usually identify whitewater rafting guides. Certainly, many participants use these symbols to demonstrate their uniqueness, which becomes a problem when nonparticipants purchase such items as souvenirs or to be fashionable.

Opportunities for Demonstrating Skills

There are considerable differences among activities on this element. Sport ballooning, skydiving, and hang gliding are highly visible;

especially when close to public areas. They also lend themselves quite readily to exhibitions and demonstrations. Likewise, board sailors, jet skiiers, and Hobie Cat sailors are almost always found near high use areas: beaches, lakes, and reservoirs. Cave explorers, rock climbers, and SCUBA divers are not so fortunate. More so than other activiites, they have to depend on the media or on fellow participants for demonstrating their skills.

Comfortable and Efficient Use of Leisure Time

New designs and materials have had an enormous effect on comfort and efficiency. However, there are some factors beyond the scope of technology, as recreationists who depend on weather are painfully aware. Beginners, in particular, are susceptible to weather since they are the least able to handle even marginal conditions. Where weather tends to be unstable, they can expect to spend much of their training time waiting for conditions to improve. For those reluctant to invest precious leisure time for future rewards, the training period can be extremely frustrating. This feeling may be further compounded by a sense of social isolation that frequently accompanies beginner status. Experts tend to be possessive of their activity, especially when forced to share resources, putting beginners in the uncomfortable position of intruders. Where weather and social isolation combine, the popularity of an activity is likely to suffer. Although it is hard to generalize, skydiving and hang gliding tend to fall in this category.

ACTIVITY TRENDS

Now that we have examined those aspects of various emerging activities pertaining to mass demand, let us take an in-depth look at the past, present, and future of three activities: skydiving, sport ballooning, and hang gliding. These particular activities were chosen because of 1) their popularity, 2) their adventure/excitement image, 3) their growth curves, and 4) the availability of relevent background information. Board sailing was to be considered due to its recent phenomenal growth,[1] but was dropped due to an almost total lack of hard historical data.

Source of Data

Since data on actual participation is simply not available, an alternative appraoch was taken--the national organizations for the three activities were contacted and questioned about the participation of their membership. When pressed about previous years, however, most were reluctant to make retrospective estimates. Therefore, the growth curves presented in Fig. 1 represent organizational membership and not total participation. Yet, according to the officials of all three organizations, these figures do reflect what was happening yearly to the total community of participants.

Skydiving

A spokesman for the United States Parachute Association estimates that 35,000 individuals will make a total of about two million jumps this year. Included in that number are first time parachutists--less than 10% of which will make a second jump. Further, only about 1% to 2% will go on to become experienced skydivers. Currently, the USPA has a membership of approximately 16,000 to 17,000 skydivers[2] or about one half of the total participants. The turnover rate (50% per year) indicates that few skydivers remain active for very long, either in USPA or in the sport.

Skydiving dates back to the early barnstorming days, but it was not until the late 1950s that the sport caught on as a general recreational activity. In 1956, the Parachute Club of America was founded with sixty members. (In 1967, the PCA became the United States Parachute Association). Growth was gradual until 1960 when it increased rapidly (Fig. 1). Between that year and 1973, membership rose from 1417 to 17,624 individuals. This period of growth can be traced to three related factors: equipment, mass media exposure, and skydiving schools. Although surplus military equipment was in widespread use in the 1960's, it was either being modified or replaced, resulting in safer and more reliable parachutes. This period also saw its first extensive exposure to skydiving, including the television program--Ripcord. Concommitantly, commercial schools and independent clubs began to multiply, making skydiving readily accessible to thousands of potential customers.

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[1] The spokeswoman for Windsurfer brand sailboards, the world's oldest and largest manufacturer, predicted they would sell 30,000 sailboards worldwide in 1980 compared to 125,000 sold since 1969.

[2] The figures since 1975 are approximate because membership is on a revolving basis, i.e., members renew the month their membership expires rather than for the calendar year.

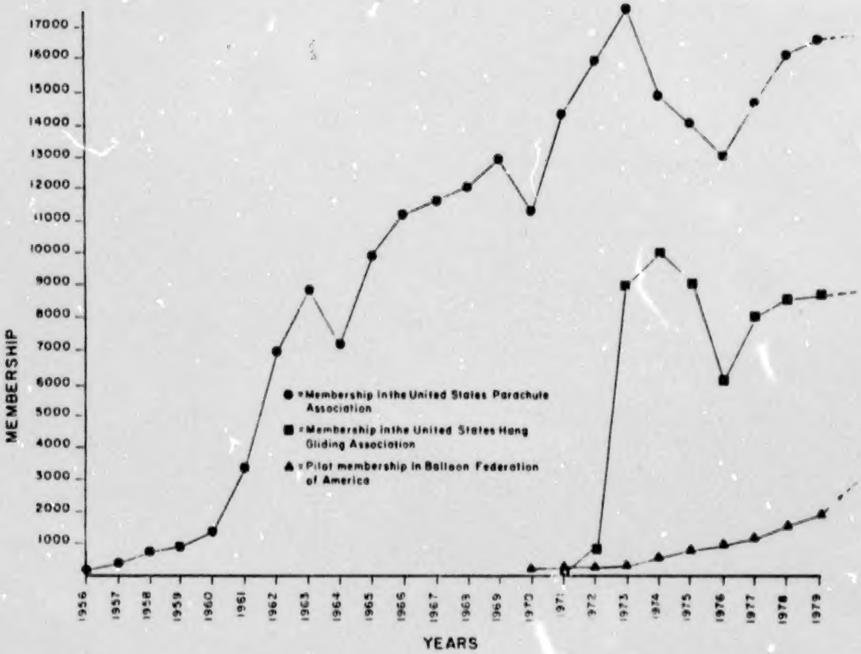

Figure 1.--Membership growth in three activity organizations.

Between the high point of 1973 and 1976, membership declined. A combination of an increase in dues and a general disenchantment with USPA was probably responsible. Therefore, the amount of this dip may not have been indicative of the entire skydiver population. By 1979, membership was again above 16,000. USPA officials believe that membership will stay around this figure for the next few years and that the total number of participants is stabilizing.

Sport Ballooning

Fifteen hundred balloon pilots currently belong to the Balloon Federation of America. According to the membership director, this figure represents 85% of all balloon pilots in the United States. In 1978, there were 1162 thermal or hot air balloons and 12 gas balloons registered with the BFA. During the same year, 38,791 hot air balloon flights were made by members, averaging 13.6 kilometers and about one hour per flight. In addition, the twelve gas balloons made 18 flights.

Sport ballooning in the United States began in the early 1960s with gas balloons, but the hot air balloon soon became more popular. As mentioned earlier, the hot air balloon is considerably cheaper to buy and operate. In 1967, the BFA was founded with 58 members. Three years later there were still only 66 members (Fig. 1). That slow rate of growth continued for several more years until 1973. From then until the present, membership has increased markedly. As with skydiving, better equipment, media exposure, and ballooning schools have all contributed to its growth. Certainly, the media exposure surrounding the successful transatlantic balloon flight (as well as the previous attempts) can be credited with much of ballooning's popularity. Officials of the BFA, in fact, believe that the number of participants will increase for some time to come, though the rate and time frame are uncertain.

Although the sport of ballooning is increasing in popularity, it is unlikely it will ever become a mass demand activity. Besides the initial cost of a balloon and auxillary equipment, it requires a support crew to aid in launching and retrieving the balloon. To apply for a private balloon pilot's license, a student needs ten hours of free flight with at least six flights under the supervision of an instructor--that training can cost between $1000 and $1500.

Hang Gliding

Compared to sport ballooning and skydiving, hang gliding is a new activity (barely a decade old). The national organization for hang glider pilots is the United States Hang Gliding Association which claims 8600 members for 1979. Actual participants, however, may be as high as 40,000. Beyond that estimate little is known. The problem with estimating participation is that hang gliders are easy to transport and can be used in a variety of environments--from backyard hills to beachside cliffs to mountain ridges. There are even portable, power winches that will pull hang gliders airborne for those without an elevated launch site. Wills (1979:20) summarizes the situation well: "No one can or will ever know that figure (the number of hang gliding flights) until every pilot on the planet punches in on a computer when he launches ... We can't even say how many pilots there are in a country, or even state, in a given month. Association and club membership is only a rough index. Some members fly, some don't. Some pilots are joiners, some anti-organization. Some fly--and die--all by themselves in remote areas."

Despite the inherent difficulties in calculating participation, the staff of the Whole Air Catalog collected some interesting data from their readership. Using this data, they estimated that 1,300,000 flights were made in 1978 with the majority of pilots making 9 to 15 flights per month (Johnson 1978a). They also discovered that the highest percentage (24.5%) of pilots still flying today began in 1976 (Johnson 1978b).

The growth curve of the USHGA is truly astounding. In its first three years, membership increased from 25[3] to 10,000 individuals (Fig. 1). In September of 1974 alone, 4000 people became new members. Two years later it dropped to 6000 and then rose gradually to its present level of 8600.

There are several possible explanations for this curve. In the early years of the sport (1971 to 1974), the majority of hang gliders were built at home from plans that cost between five and ten dollars. Entire gliders could be built for under $100. As one would expect, the combination "man's oldest dream" at an affordable price attracted everyone from the merely curious to the serious recreationist. By 1974, designers began to turn away from selling plans to manufacturing pre-built gliders. As a result, prices rose to around $500. Today, plans are all but absent and prices are in the $1200 to $1500 range. Undoubtedly this change was responsible for weeding out many would-be flyers. At the same time, new designs were cropping up so rapidly that many became obsolete soon after they were released--a discouraging situation for someone who just invested several hundred dollars. By 1976, most of the radical design changes were over, and manufacturers turned towards refining the hang glider. According to USHGA officials, the chaotic days of hang gliding growth are in the past. The curious and the thrill seekers have dropped out and are being replaced (albeit at a slower rate) by dedicated pilots. In fact, they predict that the present level of participants will remain much the same for the decade ahead.

SPECIAL PROBLEMS

Many of the emerging activities and high risk activities find themselves faced with two problems that could affect future trends: safety and the perception of risk, and government regulations.

The very term--high risk recreation--implies that the activities themselves are inherently unsafe. Many outsiders who might otherwise become participants believe that hang glider pilots, skydivers, rock climbers, etc. are at the mercy of fate, probability, or the elements. Few recognize that the majority of accidents are the result of participant error, not faulty equipment or factors related to the activity itself. For instance, a study of hang gliding accidents (Tongue 1977) found that those most susceptible to fatal injury were pilots with a cavalier attitude towards their participation. Freak accidents do occur, but these are rare. Unfortunately, the mass media tends to overplay the risks involved, giving many activities an undeserved bad image. While the potential for serious injury or even death does exist, the risks can be controlled through skill and experience

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[3] The original organization was the Southern California Hang Gliding Association.

(Schreyer and White 1979). The image may nevertheless discourage many while encouraging others attracted out of a sense of bravado or thrill seeking. These persons often become the stereotypes reinforcing negative images (and often become through carelessness the accident statistics that maintain those images).

The other factor that may influence future trends is the proliferation of government regulations. Generally, these are of three types: 1) to protect participants from injury; 2) to protect nonparticipants from injury; and 3) to protect the environment. In some cases, national organizations have headed off government intervention by either instituting self-regulations or by lobbying against regulations that could severely curtail participation. Such battles emphasize that there are factors affecting an activity's future which may have little to do with its actual potential for growth. The current use limits on many of the nation's wild rivers is a good example.

CONCLUSION

While the novelty and excitement of new recreational activities, particularly those involving an element of risk, have captured the interest of the mass media, there is an amazing lack of solid information about participation in these activities. Much more is known about the backpacker than the skydiver and the balloonist. In a world governed by priorities, that is perhaps understandable--there are more backpackers than skydivers and balloonists combined. However, if public and private planners are to provide a diversity of opportunities for satisfying different recreational preferences, emerging activities will have to receive the attention they deserve.

The need for information is underscored by the fact that certain emerging activities may be the answer to potential future constraints on recreation participation. Many of today's more popular activites are highly consumptive of precious natural resources. As these resources become scarce, recreational activities will have to change. That change, however, can be as exciting as it is needed. Activities such as hang gliding, board sailing, and free climbing not only use simple, functional equipment that is relatively nonconsumptive; but they are challenging and stimulating as well.

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TRENDS IN DAY USES OF PARKS AND FORESTS[1]

Joseph T. O'Leary[2]   John Peine[3]   Dale Blahna[4]

Abstract.--Trends for seven day use activities were compared from national recreation survey data collected in 1965, 1972 and 1977. General increases in involvement of the total population was found for the 1965-1977 period. Little change in participation was found for racial and sex characteristics, but shifts in participation were found for age and education groups that could have significant impacts on the future of outdoor recreation.

INTRODUCTION

The United States is a nation that maintains almost a demonic interest in collecting data about just about everything. Participation in outdoor recreation has not escaped this gaze, with several national and many regional, state and local surveys being done since the 1950's. Of all the outdoor involvement that has been measured, day use activities done in parks, forests and other recreation places represent one area that has received substantial attention perhaps because they are pursuits that can be done both locally and regionally and impact almost every facility level.

Unfortunately, it has often been difficult to monitor changes over time in participation because the data needed to do it were not available or exactly comparable. The Bureau of Outdoor Recreation, now known as Heritage Conservation and Recreation Service, has been involved in several national surveys of outdoor recreation. Leisure scientists have found it difficult obtaining the data to allow secondary analysis. This tendency appears to have been changed with the 1977 national survey. Several scientists acquired actual copies of the original data tapes or participated in preparing an assortment of papers that explored various relationships of other data with the 1977 survey results or exclusively concentrated on the survey itself. As the research community learned more about this national data, there was an increasing interest to gain access to actual data tapes of some of the other original national surveys. Beyond initial reporting in the official publications describing results, very little additional study appears to have been made of this information and there has been an absence of comparative analysis. However, three of these national surveys(1965, 1972 and 1977) have become available to researchers at Purdue University and the University of Michigan. Since the surveys contain much information about day use involvement and can be compared for selected questions, this paper will examine seven selected activities and the manner in which involvement is distributed within the population for 1965, 1972 and 1977. The orientation of the paper concentrates on using activity involvement to examine day-use of parks and forest because use has normally been measured in most studies via the activity route. Similarly, the nature of the variables in the data available could be compared most satisfactorily in this way. The material is seen as being exploratory in that no explicit hypotheses are tested, yet because of the absence of previous comparative work, this effort can set the stage for subsequent in-depth secondary analysis.

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[1] Paper presented at the National Outdoor Recreation Trends Symposium, Durham NH, April 20-23, 1980.

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PROCEDURE

Copies of the data tapes for the 1965 Bureau of Outdoor Recreation National Recreation survey, the 1972 Audits and Surveys National Recreation Survey and the 1977 Bureau of Outdoor Recreation National Outdoor Recreation Survey were obtained for analysis of the day use activities, bicycling, other boating, fishing, hunting, picnicking, sailing and swimming (pool and other outdoor). Information describing the features of the three surveys is presented in Table 1. Computer analysis of the 1965 and 1972 surveys was done at the University of Michigan and analysis of the 1977 survey was done at Purdue University using similar SPSS statistical package programs. For each year, the activities were examined to obtain the total percent of those who had reported participating. Then five socioeconomic/demographic variables (income, age, race, sex, and education(were used to examine the percent distribution of participation by categories that were common to the three surveys.

In the 1977 survey respondents were asked whether or not they participated in the activities during the previous year and a yes/no response was obtained. However, in both the 1965 and 1972 surveys the respondents were queried about their activity involvement using several different questions. To obtain an aggregate measure of participation in an activity during a year, each question was searched. If there was a positive response to any of the questions, then that respondent was identified as a participant for calculation of percent of the population that was participating in an activity. There should be no double counting.

It is important to note this strategy. After considerable thought this procedure was selected. It appeared to be the logical way to examine the data for the aggregated measure of involvement we needed. However, when the final results are examined, none of the final results are the same as those reported in the "official" 1965 and 1972 publications. In most cases, the data reported here is slightly higher. Thought was given to why these differences might exist, but in the absence of documentation about procedures used in the original tabulations it was impossible to do any type of complementary analysis.

Comparability of the Three Surveys

One of the key issues that needs examination in any use of different data sets is the comparability of the material. In the case of the three national surveys used in this paper there are at least two sources of information that have been consulted. Kirschner Associates (1975) prepared an in-depth review for the then Bureau of Outdoor Recreation of five nationwide citizen surveys dealing with outdoor recreation. Included in this discussion was a comparison of the 1965 BOR Survey and the 1972 Audits and Surveys survey used here. In addition, Blahna (1979) has reviewed and compared the 1972 survey work with the 1977 Outdoor Recreation Nationwide survey.

The Kirschner Associates document is an extensive review (close to 300 pages) that makes comparisons, provides copies of questionnaires and makes recommendation for subsequent work in the citizen survey area. In their comparison of the 1965 and 1972 surveys, a basic finding was that because of the nature of the 1972 instrument the reporting of participation would probably tend to be conservative or underestimated because of the redesign for use in demand equations. Based on their review it does appear that gross comparisons (% of people participating) and types of persons participating in specific activities are possible. Since this was the goal of the "day-use" activity orientation in this paper the comparisons we made seemed reasonable.

Blahna's (1979) review of the 1972 and 1977 surveys also pointed to areas of concern. First, the activity participation reported in the 1977 survey appear to be high based on reviews of other surveys done between 1973 and 1978. This may be related to the low response rate encountered in the telephone interviewing and the tendency of this procedure to include those who are most interested in the subject area.

Of the activities that were examined, the phrasing of the question for swimming created a problem. In the 1977 survey the question linked the activity "sunbathing" to swimming thus identifying two activities and confounding the issue of involvement. We would assume that this would influence the response to the question.

Finally, to construct a participation percent for each activity in the 1972 survey, the data had to be accumulated from four questions. The first three questions addressed the three summer months of 1972 and inquired about activity involvement on vacations, overnight trips, recreational outings that took the better part of a day, and finally for other short recreation outings. Then another question was posed to ask about a nine month period from September to May and the activities done in that period.

Table 1. Features of the 1965, 1972 and 1977 Survey Samples

	YEAR		
	1965[a]	1972[b]	1977[b]
Type of Interview	Personal	Personal	Telephone
Time Period Coverage	3 summer months	3 summer months plus rest of year	entire year
Number of Respondents	7194	4029	4029
Response rate	91%	54%	51%
Respondent Age	12+	12+	12+
Sample Selection	persons from CPS households	1 person/household in a systematic cluster sample of households	random systematic sampling of counties and random digit dial technique (up to 4 callbacks for no answers

[a] Kirschner Associates (1975)

[b] Blahna (1979)

Table 2. Comparison of 1972 and 1977 survey questions about swimming.

YEAR	
1972	1977
Outdoor pool swimming	Swimming or sunbathing in an outdoor pool
Other swimming	Other outdoor swimming or sunbathing

The subjects in the 1977 survey were read a list of activities and asked whether or not they had done any of those in the last 12 months. This was done on the first page of the survey instrument while respondents were still fresh. The complexity of the 1972 questions may have caused those not particularly interested in the survey to respond negatively simply to get the whole process over with.

RESULTS

Analyses of the overall percent of the population reporting involvement in the period 1965-1972. These decreases are rather dramatic, in some cases indicating that there was a drop in participation of almost 50%. Of course, this is inconsistent with contemporary gospel about recreation use. Yet even in the published material that provided summaries of the 1965 and 1972 data, decreases or relative stability in the amount of use was reported (Kirschner, 1975: Appendix D). There are at least two explanations for these apparent changes. One is that there actually was a downward change in the nation's involvement in outdoor recreation. This is a difficult hypothesis to accept since most on site visitation data suggests continuing growth. Perhaps the more likely reason for the changes is related to the methodological changes that suggest an underestimation of involvement. Yet the differences are still somewhat unusual.

It is important to note that two of the activities - fishing and hunting - showed mild increases in the same period that the other activities were decreasing. The subtle upward change found for fishing (30% to 31%) in our analysis is in opposition to the information that was published describing a decrease from 30% to 24%.

While the analysis done here points toward questions about the original analysis of these two data sets, there is at least a general observation to be made. Although the absolute numbers are not the same, the tendency to report decreases from 1965 to 1972 is consistent for five of the seven activities examined.

Table 3. Percent involvement in all activities, 1965, 1972, 1977.

Activity	YEAR		
	1965	1972	1977
Bicycling	29.4	20.9	50.4
Fishing	30.2	31.2	54.2
Hunting	13.5	14.8	18.7
Other Boating	30.4	17.4	36.3
Picnicking	62.2	52.4	73.8
Sailing	7.1	3.0	13.2
Swimming	51.3		
Pool		21.2	66.7
Other outdoor		36.4	49.2

In light of the 1972 data, comparing it to the 1977 data is somewhat easier. In every case, participation reported from the 1977 survey shows a dramatic to moderate increase. For example the portion of the population involved in bicycling went from about 21% in 1972 to 50.4% in 1977. Boating involvement doubled; fishing increased 23% over the 1972 level; picnicking rose to a level 20% higher. One of the most intriguing changes is in swimming at a pool which showed 300% growth. A companion activity - other outdoor swimming - increased about 13% over its 1972 level. The swimming changes are particularly confounding because sunbathing was included as part of the activity description. The changes reported suggest measurement of two activities and it is impossible to disaggregate the results to reflect the contribution of each to the overall number. Finally, hunting is the only activity demonstrating a subtle upward meovement from 14.8% in 1972 to 18.7% in 1977.

Again an earlier point should be reemphasized. The change in the manner in which questions were asked about participation (one question in the 1977 instrument vs. several questions in 1965 and 1972) and the location of the question right at the beginning of the 1977 instrument may have had a significant effect on response. Similarly, the response rate for the 1977 survey may show some selection of respondents most interested in outdoor recreation.

Participation and Descriptive Population Characteristics

Tables 4 thru 12 provide descriptive socioeconomic and demographic information for those individuals reporting involvement in the day use activities being examined. An initial observation that can be made about this data is that in every activity there are persons from every socioeconomic/demographic category involved. The number of characteristics provided make summary difficult. In addition, the income categories that are used in each of the three surveys are difficult to compare. First, $6000 in 1965 is valued much differently than it is in 1977.

Similarly the 1972 (15,000-24,999;>25,000) and 1977 (25,000-50,000; >50,000) surveys added additional categories to the >$15,000 figure used as the upper level in 1965.

Comparison of the data appears to show that non-white involvement in these activities has changed little in the 12 year period. In some activities there actually appears to be a minor decrease (e.g., hunting, other outdoor swimming, pool swimming, boating and sailing). Small increases or no change in non-white involvement are apparent in bicycling, picnicking and fishing. Similarly, there are significant differences between some activities by sex, but within activities there appear to be few shifts (an exception to this is in hunting).

Age and education appear to be the most complementary categories that can be compared in the three surveys. While there are differences within each group over time, the general shape of these distributions is similar. It is interesting to note that the 1977 data appears to show lower levels of involvement for the younger age groups for virtually all the activities. It also shows higher levels of involvement than ever reported before in the 25-44 age groups for all the activities. This latter observation is especially true for bicycling. Involvement by persons in the 25-44 age group has almost doubled since 1972, and shown a sizeable change since 1965.

Sailing appears to have been a particularly volatile activity (if you can use the word to describe the process) decreasing in involvement for every age group except for those 25-44. Other boating demonstrates a similar tendency.

When involvement in the activities is compared by education levels, the results from the 1965 and 1972 surveys are quite similar. Sharp peaks are apparent in the percent of those with a high school education doing an activity. The 1977 data shows evidence that those reporting a college education are more involved in these day-use activities than ever before. The distributions are rather similar in their general shape. Almost all of these changes represent 100% increases over either the 1965 or 1972 situation. Sailing is an interesting activity in that the 1972 and 1977 data for those with college education and above virtually coincide.

DISCUSSION

The trends in the seven day-use activities provide a point of departure for discussing longitudinal data examinations. It is interesting to consider that we were not able to replicate the exact results that had been officially published. Although a number of attempts to duplicate the original fundings were made, none of these seemed to work. While the results from these analyses appear to be close, it has taken this retrospective review to raise questions about possible differences. The Kirschner Associates report suggested some other considerations that would also lend themselves to possibly clarifying the survey results and making them more useful (exploring selected differences between variables; changing the weighting scheme; evaluation of preferences, etc.). It seems clear that more adequate documentation is necessary for these date sets, something which goes beyond a listing of variables and their column locations.

More research (and secondary analysis at that) should be directed at the surveys to explore in greater detail the complexity of the relationships in the data. For example, the observation that for almost all the day-use activities younger persons (12-17; 18-24) are not participating as a group at the same level as they did in 1965 or 1972 is rather intriguing. Even if we were to disregard the 1972 survey, a change in the 12 years from 1965 to 1977 appears to have taken place. The immediate question to be asked would be if this pattern is the same for all the other activities that could be compared. It would be possible to explore some of the possible reasons for change based on additional questions asked in the 1977 survey. It is also interesting to speculate on what will happen to this group as they become older since some literature appears to suggest that early recreation experiences will impact involvement later on in one's life.

Perhaps one of the more interesting observations from the trend data is the increase in the proportion of the population with college education participating in day-use activities. The change is so dramatic that at least some consideration should be given to the alteration. We would anticipate that this group would maintain an above average income with more of it available for leisure expenditures. Therefore, we might anticipate that there would be greater interest in the acquisition of accoutrements associated with the activities. Similarly we would anticipate a more knowledgeable group of users pursuing the activities under consideration. This would potentially impact the view of the participating public on the management activities undertaken to provide the activities. Managers may find that they will be increasingly questioned about their activities because of the increased involvement

Table 4. Socioeconomic/demographic characteristics for Bicycling, 1965, 1972, and 1977 outdoor recreation survey.

Characteristic	YEAR				
	1965		1972		1977
Income					
<6000	44.9		16.4		7.6
6000-9999	31.0		27.7		15.6
10000-14999	17.2		28.3		25.1
>15000	6.8	15000-24999	20.6		34.2
		>25000	7.0	25000-49999	14.4
				>50000	3.0
Age					
12-17	35.0		43.2		25.3
18-24	14.9		18.6		19.8
25-44	28.4		26.6		39.4
45-64	16.1		9.4		12.2
over 65	5.6		2.2		3.3
Race					
White	38.4		82.6		86.1
Nonwhite	11.6	Black	12.6		10.8
		Other	4.8		3.1
Sex					
Male	46.9		44.1		49.0
Female	53.1		55.9		51.0
Education					
Grade School	7.2		6.9		3.6
Junior High	21.4		18.1		11.1
High School	55.8		50.4		44.7
College	14.1		19.9		33.4
Graduate	1.4		4.7		7.3

Table 5. Socioeconomic/demographic characteristics for Fishing, 1965, 1972, and 1977 outdoor recreation survey.

Characteristic	YEAR				
	1965		1972		1977
Income					
<6000	42.5		21.2		9.5
6000-9999	32.8		32.6		16.7
10000-14999	17.5		27.9		26.1
>15000	7.2	15000-24999	13.7		32.0
		>25000	4.6	25000-49999	13.1
				>50000	2.6
Age					
12-17	23.2		19.6		19.0
18-24	15.3		16.0		15.9
25-44	33.4		36.7		37.7
45-64	22.7		22.8		19.9
over 65	5.4		4.0		7.6
Race					
White	92.8		86.3		88.5
Nonwhite	7.2	Black	8.8		8.8
		Other	2.9		2.7
Sex					
Male	57.6		61.2		58.1
Female	42.4		38.8		41.9
Education					
Grade School	6.8		6.3		3.9
Junior High	18.2		16.1		10.9
High School	57.1		55.2		48.1
College	15.7		18.9		31.1
Graduate	2.2		3.6		6.0

Table 6. Socioeconomic/demographic characteristics for Hunting, 1965, 1972, and 1977 outdoor recreation survey.

Characteristic	YEAR				
	1965		1972		1977
Income					
<6000	49.7		18.5		8.4
6000-9999	30.8		37.0		14.5
10000-14999	14.5		27.7		24.9
>15000	5.0	15000-24999	12.6		35.3
		>25000	4.2	25000-49999	13.7
				>50000	3.2
Age					
12-17	20.5		15.9		17.0
18-24	19.7		17.9		18.5
25-44	35.8		39.8		40.1
45-64	19.6		21.2		18.7
over 65	4.4		5.3		5.6
Race					
White	92.7		91.4		94.1
Nonwhite	7.3	Black	6.7		3.8
		Other	1.8		2.1
Sex					
Male	87.8		81.8		79.9
Female	12.2		18.2		20.1
Education					
Grade School	8.8		5.7		3.8
Junior High	17.2		15.0		9.6
High School	57.7		58.9		52.7
College	14.4		18.3		29.8
Graduate	1.9		2.2		4.1

Table 7. Socioeconomic/demographic characteristics for Boating (Other), 1965, 1972, and 1977 outdoor recreation survey.

Characteristic	YEAR				
	1965		1972		1977
Income					
<6000	37.8		13.0		6.7
6000-9999	33.8		26.6		14.9
10000-14999	20.2		31.7		23.1
>15000	8.3	15000-24999	22.4		34.5
		>25000	6.3	25000-49999	16.9
				>50000	3.9
Age					
12-17	20.9		20.6		18.4
18-24	17.7		17.8		17.0
25-44	33.4		37.1		40.7
45-64	22.5		21.1		17.1
over 65	5.6		3.2		6.8
Race					
White	95.5		93.3		92.6
Nonwhite	4.5	Black	4.8		5.1
		Other	1.9		2.3
Sex					
Male	54.1		49.8		55.3
Female	45.9		50.2		44.7
Education					
Grade School	4.8		4.3		2.6
Junior High	16.1		11.7		8.2
High School	56.9		52.2		45.0
College	19.9		26.0		36.0
Graduate	2.3		5.9		8.1

Table 8. Socioeconomic/demographic characteristics for Picnicking, 1965, 1972, and 1977 outdoor recreation survey.

Characteristic	YEAR				
	1965		1972		1977
Income					
<6000	44.4		20.4		10.3
6000-9999	33.0		32.8		17.2
10000-14999	16.7		26.8		24.8
>15000	5.9	15000-24999	15.4		32.1
		>25000	4.6	25000-49999	13.1
				>50000	2.4
Age					
12-17	18.3		16.0		14.9
18-24	15.4		16.9		14.7
25-44	37.7		36.9		40.0
45-64	21.6		24.2		21.3
over 65	7.1		6.8		9.1
Race					
White	91.4		86.2		87.4
Nonwhite	8.6	Black	[illegible].1		9.7
		Other	3.6		2.9
Sex					
Male	46.0		43.9		47.5
Female	54.0		56.1		52.5
Education					
Grade School	5.7		5.8		2.7
Junior High	17.2		14.3		9.6
High School	57.1		54.4		46.2
College	17.2		20.4		33.1
Graduate	2.9		5.1		8.3

Table 9. Socioeconomic/demographic characteristics for Sailing, 1965, 1972, and 1977 outdoor recreation survey.

Characteristic	YEAR				
	1965		1972		1977
Income					
<6000	36.8		7.2		4.6
6000-9999	31.5		10.6		11.9
10000-14999	20.0		31.7		15.9
>15000	11.8	15000-24999	26.1		35.2
		>25000	24.4	25000-49999	26.6
				>50000	5.7
Age					
12-17	19.5		22.9		19.9
18-24	16.2		23.5		19.2
25-44	33.7		31.5		43.8
45-64	21.4		18.9		14.4
over 65	9.3		3.2		2.7
Race					
White	93.7		97.5		91.3
Nonwhite	6.3	Black	2.0		6.5
		Other	0.5		2.1
Sex					
Male	51.9		54.3		52.2
Female	48.1		45.7		47.8
Education					
Grade School	7.1		3.2		2.3
Junior High	18.9		10.0		7.1
High School	46.8		29.2		33.4
College	23.8		44.9		43.9
Graduate	3.5		12.7		13.4

Table 10. Socioeconomic/demographic characteristics for Swimming, 1965, 1972, and 1977 outdoor recreation survey.

Characteristic	YEAR				
	1965		1972		1977
Income					
<6000	38.2				
6000-9999	34.3				
10000-14999	19.1				
>15000	8.4	15000-24999			
		>25000		25000-49999	
				>50000	
Age					
12-17	25.1				
18-24	19.4				
25-44	36.0				
45-64	16.7				
over 65	2.9				
Race					
White	93.3				
Nonwhite	6.7	Black			
		Other			
Sex					
Male	50.1				
Female	49.9				
Education					
Grade School	4.2				
Junior High	15.3				
High School	57.7				
College	19.7				
Graduate	3.1				

Table 11. Socioeconomic/demographic characteristics for Other Outdoor Swimming, 1965, 1972, and 1977 outdoor recreation survey.

Characteristic	YEAR				
	1965		1972		1977
Income					
<6000			15.8		7.2
6000-9999			29.3		15.9
10000-14999			28.1		25.3
>15000		15000-24999	18.9		33.1
		>25000	7.9	25000-49999	15.5
				>50000	2.9
Age					
12-17			25.3		19.3
18-24			21.2		18.5
25-44			38.5		42.9
45-64			13.5		15.7
over 65			1.6		3.7
Race					
White			89.1		91.5
Nonwhite		Black	6.5		5.8
		Other	4.4		2.7
Sex					
Male			46.8		50.1
Female			53.2		49.9
Education					
Grade School			3.6		2.0
Junior High			12.9		9.1
High School			54.9		44.1
College			23.0		36.0
Graduate			5.6		8.8

Table 12. Socioeconomic/demographic characteristics for Pool Swimming, 1965, 1972, and 1977 outdoor recreation survey.

Characteristic	YEAR			
	1965	1972		1977
Income				
<6000		15.1		7.4
6000-9999		29.1		15.9
10000-14999		28.4		24.0
>15000	15000-24999	19.4		33.4
	>25000	8.0	25000-49999	16.1
			>50000	3.2
Age				
12-17		31.2		19.6
18-24		20.5		18.1
25-44		32.4		40.9
45-64		14.2		17.0
over 65		1.8		4.4
Race				
White		87.3		90.3
Nonwhite	Black	8.0		7.0
	Other	4.7		2.6
Sex				
Male		47.9		49.0
Female		52.1		51.0
Education				
Grade School		5.0		2.7
Junior High		13.4		9.3
High School		51.7		44.9
College		24.1		34.6
Graduate		5.8		8.6

of this group. These are issues that at this point can only be speculated upon. More specific investigation within this group may provide better understanding of the process.

CONCLUSION

The examination of the seven day-use activities suggests both increases in overall recreation involvement since 1965 and shifts within the population of those involved in the activities. However, because of the differences between some of the results reported here and the "official" published data, care must be exercised in the interpretation. A helpful clarification of this analysis could come from within group studies, especially where significant shifts appear to have occurred. Additional secondary analysis of other data may provide further insight into these changes and assist planners and managers in understanding the future of day-use activity involvement and the subsequent resource impacts.

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TRENDS IN OUTDOOR RECREATION ACTIVITY CONFLICTS[1]

John J. Lindsay[2]

Abstract.--Conflict caused by outdoor recreation activity groups competing for the same physical and psychological space has given rise to recreation resource planning, allocation and management problems. Research has shown recreation managers can expect certain types of users to be involved in significant conflict about 25 percent of their occupancy time. Well planned and managed outdoor recreation space can significantly reduce or even prevent conflict.

DEFINITIONS

Outdoor recreation conflict is defined as any physical, social or psychological obstruction arising within or between participants and their recreation goals.

Conflict may be inter- or intra- group in nature and can be identified with cause and effect relationships.

Conflict is directly related to the quality of the outdoor recreation experience and sets dynamic parameters on the social and psychological carrying capacity of an outdoor recreation environment.

Outdoor recreation carrying capacity is defined as the physical, biological, social and psychological capability of the outdoor recreation environment to support recreation activity without diminishing user satisfaction or site quality (Figure 1). It may be further conceptualized as a function of the quantity of the recreation resource, the tolerance of the site to use, the number of users, the type of user, the design and management of the site and the attitude and behavior of users and managers (Figure 2).

A second type of physical conflict occurs when participants' use of a recreation site results in various kinds of impact on the natural environment.

RECREATION CARRYING CAPACITY

INVOLVES THE PHYSICAL AND BIOLOGICAL COMPONENTS OF THE SITE AS WELL AS THE SOCIAL AND PSYCHOLOGICAL ATTITUDES AND BEHAVIOR OF THE RECREATION USERS.

Figure 1.--Outdoor recreation carrying capacity - a definition.

A third type of conflict which may be termed political, takes place between opposing factions of outdoor recreation vested interests and involves land use allocation decisions. These conflicts are greatly complicated when non-recreation groups such as timber, water, cattle, and mineral interests conflict over the use of the same acreage sought by recreationists.

Finally, a fourth type of conflict exists between the philosophies and practices of natural resource owners and managers and the attitudes and behavior of the recreation seeking public.

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CCF(QTNU,DMAB)

CARRYING CAPACITY IS A FUNCTION OF QUANTITY OF THE RECREATION RESOURCE, TOLERANCE OF THE SITE TO USE, NUMBER OF USERS, USER TYPE, DESIGN AND MANAGEMENT OF THE SITE, AND THE ATTITUDE AND BEHAVIOR OF THE USERS AND MANAGERS.

Figure 2.--A functional definition for outdoor recreation carrying capacity.

This paper will deal only with encounters of the first kind: those that involve inter- or intra-group conflict occurring when participants engage in recreation activity.

The Problem

The conflict problem simply stated, is that recreationists tend to compete for the same physical, social and psychological space during the same time period.

Its causes are many but perhaps the most serious is that the supply of outdoor recreation space, particularly in the eastern region of the United States is diminishing (primarily because of urbanization) while recreation demand for that same space is increasing both in the number of participants and kinds of activities which are often incompatible with one another. Shafer (1975) states in his paper, Impact of Human Needs on the Natural Environments for Recreation, that urban sprawl may consume 19.7 million more acres of potential recreation land by 2000, an area equivalent to the states of New Hampshire, Vermont, Massachusetts, and Rhode Island. Three and a half million acres may possibly go to highways and airports; 5 million acres of hunting and scenic areas from agriculture to public facilities and second homes and in 17 years 2 million more acres will be allocated to power line right-of-ways. At stake in this land reallocation are our recreation resources.

The second major cause of outdoor recreation conflict is the difference in perception, attitude and behavior between motorized and pedestrian users of recreation environments. The growth in the numbers of users of each type is impressive.

The Council of Environmental Quality estimates there are now (1979) 10 million off-road vehicles and snowmobiles being used in the United States by some 43.6 million Americans. Seventy percent of the snowmobiles in the United States are used in the northeast region which has the highest population density and the least amount of public land (Figure 3).

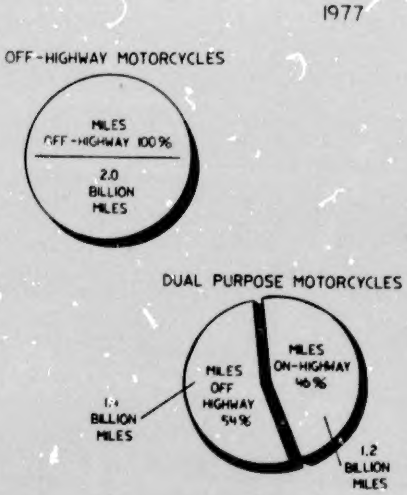

Figure 3.--Miles traveled by off-highway and dual purpose motorcycles in 1977.

There were 670,000 motorcycles sold in the United States in 1969 and 1,050,000 more sold in 1976 accounting for a 57 percent sales increase in 7 years. Motorcycle registrations for these same two years increased from 1.4 million in 1965 to 5 million in 1976 (about a four fold increase).

Pedestrian recreation activity shows similar growth. The National Park Service reports that backcountry use in eastern National Parks has tripled since 1967. The Bureau of Outdoor Recreation estimated there were 10 million hikers 12 years of age and older in 1965, or about 7 percent of the population of the United States. Lucas 1971, quotes a "walking for pleasure" statistic of 68 million people or 48 percent of the population. He then sums the occasions of nature walks, walking for pleasure and hiking and estimates that 1.4 billion pedestrian recreation occasions occur in 1 year in this country. The Bureau of Outdoor Recreation statistics for 1970 estimate 30 million people in the United States have participated in nature walks. The Department of the Interior estimates in the 1974 National Outdoor Recreation Plan Draft that there were 1.9 billion walking activity occasions in 1965 and projects 2.8 billion in 1980 and 4.4 billion in 2000 (U.S.D.I. 1974).

It is possible to conclude from these pedestrian and vehicular recreation statistics that based on numbers of participants, limited space and competing activities, the potential for outdoor recreation conflict both within and between recreation groups is substantial.

A Brief History

In their haste to bring the imbalance between demand and supply to the attention of the American public, the Outdoor Recreation Resources Review Commission (1962) did not deal with conflict or potential conflict between activity groups over the use of recreation resources except for a limited reference in their Report #5 entitled the Quality of Outdoor Recreation as Evidenced by User Satisfaction. In a study of participants using 11 selected outdoor recreation areas in the country ranging from ski areas to National Parks, the Commission reported that respondents indicated under development and overcrowding as problems they felt needed attention.

The next conflict references in the literature dealt with crowding in wilderness areas and conflicts between backpackers and horseback campers, and motorboaters conflicting with canoeists (Stankey 1971, Lucas 1964).

Lucas's 1964 Quetico-Superior report contained accounts of conflict between motorboat and canoe use of this wilderness waterway. He reported that canoeists "usually wanted no motorboats on the waterway" and felt crowded by them (Lucas 1961). Lime and Stankey (1971) state that the perception of the recreation environment is different between user types and what is a quality recreation experience to one may be entirely undesirable to another (Lime and Stankey 1971). Also, Lucas, Hendee and others (1964, 1968) report that what the recreationist perceives as acceptable or desirable may be quite different from what the recreation manager perceives.

Prausa stated in his 1971 paper on Multiple-Use Management for Recreation in the East that besides multiple-use conflicts there is another conflict much more difficult to resolve. It is the people vs. people conflict and concerns the conflicts brought about by growth and diversity of various recreation uses of wild lands.

Stankey's Ph.D. thesis dealing with wilderness recreation carrying capacity reported that "Over half of the hikers in three western wilderness areas preferred not to meet horsemen and that loss of solitude at campsites because of crowding, reduced satisfaction for his study participants" (Stankey 1971).

Wagar (1964) concludes in his Carrying Capacity of Wild Lands for Recreation report that "recreation management procudures may allow both high-quality recreation and high rates of use if they: a) reduce conflicts between competing uses, b) reduce the destructiveness of people, c) increase the durability of areas, or d) provide increased opportunities for enjoyment".

The next group of noticeable conflict references in the literature came with the surge in the sale and the public's use of snowmobiles, trailbikes and other off-road vehicles. I have previously stated selected statistics on their use and you have heard Garrell Nichole's discussion of them. Suffice to say that the frequency and magnitude of the social, legal, and environmental impacts caused by off-road vehicles has been cataclismic and that it is only in the last decade that recreation managers, governments and industry have begun to control their use within acceptable social standards. But the problem is far from solved.

Federal land management agencies have differed in the rate and nature of their response to Presidential Executive Order 11644 dealing with ORVS and their use and impact on federal land, but all are currently implementing regulations resulting from the Order (CEQ 1979).

In a well designed effort to bring to light current knowledge concerning the recreation resource carrying capacity problem, Stankey and Lime in 1973 released an annotated bibliography entitled Recreational Carrying Capacity containing 208 citations related to the subject.

Finally in the historical mode, outdoor recreation researchers have recently come under some criticism form sociologists and psychologists for not using established precepts from those disciplines. Bryan (1979) has just released a study report entitled Conflict in the Great Outdoors which is a conceptual framework of outdoor recreation behavior based on sociological and psychological principles.

Concepts From The Literature

In this section of my paper I have annotated key postulates and concepts from the literature to familiarize you with current thinking on the conflict problem.

- In order to manage an area under the carrying capacity concept, managers and the public must set recreation use and environmental impact objectives prior to area utilization. Unless this is accomplished, carrying capacity becomes enmeshed in a sliding scale of uncontrolled use detrimental to site quality and user satisfaction (Lindsay 1979).

- Recreation space demand may be thought of as a sphere whose diameter is set by the greatest space demanding factor associated with that activity such as noise, speed, distance traveled, solitude or numbers of users per unit area (Figure 4) (Lindsay 1979).

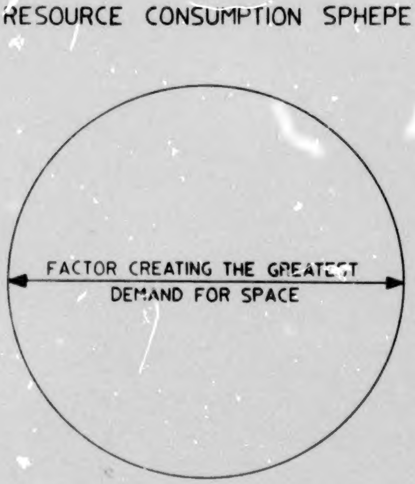
RESOURCE CONSUMPTION SPHERE
FACTOR CREATING THE GREATEST DEMAND FOR SPACE

Figure 4.--The outdoor recreation space consumption sphere.

- Recreation activity space demand spheres may be completely compatible and concentric on the same site such as those created by nature observers and fly fishermen, or partially compatible and partly overlapping such as those created by sailboaters and boat fishermen, or they may be totally incompatible and demand separate space spheres such as those created by trailbikes and backcountry hikers (Figure 5). Such activities involve single use resource allocations. When the various activity space spheres fill the entire recreation space site sphere, the site is said to be at its point of carrying capacity for a specific period in time (Figure 6) (Lindsay 1979).

- Recreation encounters or path intersects can be measured, predicted and managed (Colton and Pitt 1979).

- Outdoor recreation space occupancy and utilization may be managed by using electronic monitoring and data systems (McCurdy and Wilkens, Shechter and Lucas 1979).

- Activity displacement, for example trailbikers displacing hikers in a recreation management unit, may take place without the area managers' knowledge (CEQ 1979).

- Outdoor recreation plans and objectives must be written for target areas or visitor destination areas (NPS 1976).

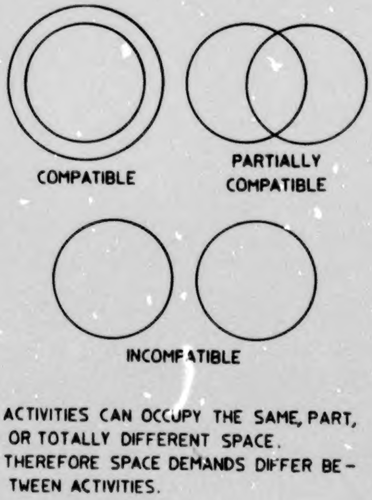
COMPATIBLE
PARTIALLY COMPATIBLE
INCOMPATIBLE
ACTIVITIES CAN OCCUPY THE SAME, PART, OR TOTALLY DIFFERENT SPACE. THEREFORE SPACE DEMANDS DIFFER BETWEEN ACTIVITIES.

Figure 5.--Compatible, incompatible and partially compatible outdoor recreation space demand spheres.

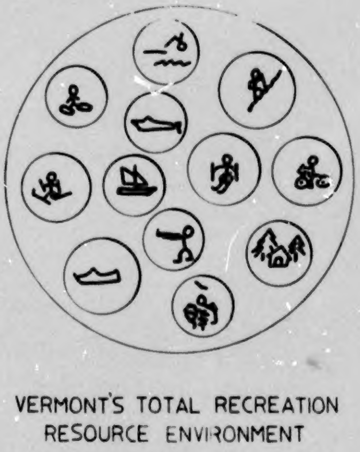

Figure 6.--The outdoor recreation space resource at capacity.

- Recreation managers are being compelled, often unwillingly, to perceive man-environmental relationships as complex ecological entities. It is becoming too costly and too dangerous to perceive them any other way (Schafer 1975).

- Human spatial behavior must be understood before a recreation planner allocates acres to recreation use. The diffusion or circulation of humans in space in order to gain access to recreation facilities or experience space is a major part of this understanding (VanDoren 1975).

- Two major ski areas in Vermont have limited their sale of weekend lift tickets because lift lines were constantly exceeding lift capacities resulting in dissatisfied and non-returning customers (Lindsay 1975).

- Recreationists must lower their threshold of sensitivity to other users (Stankey 1973).

- The number and type of recreationists that can use a recreation area at the same time without destroying user satisfaction or area quality is a basic management decision (Tribe 1972).

- How people perceive outdoor recreation experiences and environments is basic to their levels of actual enjoyment, frustration or conflict (Lime and Stankey 1971, Moeller et al. 1974).

- Users will accept regulation of conduct and movement if (1) they don't know they are being regulated, or (2) if they are educated through sound information and interpretive techniques (Lime and Stankey 1971).

- Defining what is acceptable outdoor recreation behavior is a value choice rather than a technical issue (Lime and Stankey 1971).

- Recreation use can be rationed through pricing, queing, reservations or lottery (Lime and Stankey 1971).

- Recreation use may be separated by space and time (Lucas 1971, Tribe 1972).

- Depreciative behavior describes behavior that violates institutional restrictions, accepted social norms or both. Too many people on a recreation site may be worse than a lttered campsite (Clark 1971)

- Undesirable (high conflict) uses may be prohibited through closure (Hetherington 1971).

- Outdoor recreation conflict intensity is greatest on urban fringe areas because of limited space, dense populations and a greater diversity of outdoor recreation interests (Lucas 1971).

- Through direct regulation of where visitors may go, how long they may stay and when they may enter the area, management can attain a desired intensity of a use for a particular site. Implicit in these techniques is a trade-off between the loss in the recreationists' freedom of choice and the gain in ability of the site to more nearly meet visitor needs and objectives (Lime and Stankey 1971).

- Use zoning and experience level zoning become critical tactical tools in the effort to manage for high quality recreation experiences (Wagar 1964, USFS 1970).

- Signing (the proper use of signs) can be effectively used to reduce or prevent outdoor recreation conflict (Brown and Hunt 1969).

- Differential fee charges may be used to shift use of off-peak times (LaPage 1968).

- Conflicting uses must be physically separated by distances that depend on the nature of the activity (Lucas 1964, Hendee et al. 1968).

- Some uses should be concentrated while others dispersed over the recreation management unit. This depends on user numbers, facilities needed and potential impact on hardened or natural sites (Lucas 1964).

- Users concepts of crowding are important for managers to understand if they are interested in providing environments in which quality recreation experiences take place (Lucas 1964).

- Managers must decide on the quality of the recreation experience planned for an area and then consciously manage for that experience level (Anon.).

and finally...

- Trophy recreation experiences are legitimate management objectives to which managers must be committed (Anon.).

The Vermont Conflict Study

Even though there are ample references to conflict and carrying capacity in the literature very few researchers have attempted to meausre its frequency and magnitude. Over the past 5 years we have attempted to do this at the University of Vermont with the following results.

Our 1974 exploratory study entitled Outdoor Recreation Conflict in Vermont, revealed that (1) conflict was a problem in Vermont, (2) most recreation activity groups experience conflict but some more than others.

Of the 15 recreation activities studied, 6 were identified as "high conflictors" found to be involved in outdoor recreation conflict at significantly higher rates than the other activity groups. These were snowmobilers, trailbikers, motorboaters, hikers, hunters and fishermen. Private landowners, as a separate study group, incurred the highest rate of conflict as recipients of outdoor recreation use impact.

Our study showed that certain user groups can be predicted to conflict and that the type and cause of their conflict can be forecasted. Based on our findings we were able to recommend conflict solution and prevention measures.

Forty percent of all the recreationists interviewed in our study experienced some sort of outdoor recreation conflict during the 1972-73 season. Twenty-seven percent experienced conflict as recreation participants and 13 percent experienced conflict as landowners conflicting with recreationists using their land.

Recreation participants living in urban areas experienced a slightly higher rate of conflict (29%) than participants living in rural areas (24%). Fifty-eight percent of the conflict occurred in rural areas compared to 42 percent in urban areas.

Subsequent studies of snowmobilers, trailbikers, and motorboaters revealed the following information. Snowmobilers did not believe they were much of a problem to other user groups. Over half (53%) of the sampled snowmobilers said they had experienced no problems while using their snowmobile in 1975. About one-quarter of the respondents cited poor trail and trailside facilities as being their only complaint. Only 4 percent cited conflicts with other recreation groups and these were mostly with cross-country skiers. If you compare these results with our base report, however, other recreation groups and landowners had a much more significat conflict with snowmobilers than the snowmobilers felt they had with these other groups. Lucas, in his 1964 Quetico-Superior study refers to this same phenonemon when he found that motorboaters did not mind having canoeists on the waterway, but the opposite was true for canoeists who did not wish to have motorboaters on "their" waterway and cited many conflicts with their form of motorized recreation activity. The other explanation for the low conflict incidence reported (4%) by Vermont snowmobilers may be that at the time of the study, there had been several thousand miles of approved trails constructed by and for snowmobilers in Vermont and when such a single use, sanctioned facility is built, conflict tends to decrease appreciably.

Thirty-one percent of Vermont trailbikers reported conflict with other groups; 19 percent conflicting with equestrians, 8 percent with law enforcement officials, and 4 percent with hikers and hunters.

Twenty-six percent of Vermont motorboaters studied experienced conflict while boating in our state during 1977. Most of their conflicts were with water skiers and other motorboaters, but included other water recreationists, landowners and law enforcement officials.

If you average the number of Vermont snowmobile, trailbike and motorboat participants that experienced conflict, about 25 percent acknowledged conflict serious enough to report. Data from Vermont hikers is just being analyzed, but at this point in the study it looks safe to say that, based on the "high conflict" sports studied, one out of four participants experience conflict during their activity season.

We further conclude that the intensity, frequency and type of conflict varies considerably with the activity, participant characteristics and the time and place the activity takes place.

Conclusion Statement

Outdoor recreation planners and managers not only have the responsibility to provide high quality natural environments for recreation activity, but perhaps more importantly, they must control or prevent conflict between participants. It is only by such dual objective efforts that high levels of user satisfaction and site quality can be maintained and that managers can feel confident that the recreation product consumed on their lands will be of a superior nature.

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TRENDS OR METHODOLOGICAL DIFFERENCES?[1]

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and Tommy L. Brown[2]

Abstract.--Inconsistency in data collection has confounded attempts to identify and forecast outdoor recreation trends. Problems are highlighted through an evaluation of the methods employed in national outdoor recreation participation surveys and projections. Recommendations are advanced for improving data collection, trend measurement, and forecasting within outdoor recreation.

INTRODUCTION

Forecasting is an exciting and challenging endeavor. This is especially true in an environment as dynamic and complex as that which surrounds outdoor recreation in North America. For some, forecasting is merely fun and interesting while for others, it is an integral part of the decisionmaking and planning process.

Planners may be classified into three groups based upon their views of forecasting. Incrementalists do not try to forecast, generally reacting to events instead of trying to anticipate and guide them. For comprehensive-rationalists forecasting is essential. Their view of planning is based upon an ability to identify goals, formulate alternative courses of action, forecast, and evaluate the alternatives within a changing environment. Trend identifiers assume a compromising stance recognizing both the difficulties of forecasting as well as its importance. They typically monitor changes over time, extrapolating from these observations to produce short-range forecasts on which to base planning decisions.

We shall ignore the incrementalists based upon a belief that there is no such thing as "not forecasting" (Mendell 1969). A willingness to observe and explain outdoor recreation systems leads to an ability to predict their behavior. This may take the form of trend identification or forecasting by means of formal or informal models.

Recent attempts to identify outdoor recreation trends and to forecast the future provide some guidance for planning and decisionmaking. These efforts also raise many questions, suggesting that both historical trend data and forecasts of outdoor recreation be interpreted and applied with considerable caution.

Those who use trend information and forecasts must be aware of the underlying methods in order to evaluate the quality of the information and its applicability to a given decisionmaking situation. Our purpose here is to provide guidance to users of trend information and to make recommendations for improving the quality and applicability of outdoor recreation trend monitoring and forecasting efforts. While the focus is upon methods, the final objective is to contribute to the provision and utilization of better information to aid decisionmakers who must cope with and plan for a changing outdoor recreation system.

The title of our paper embodies several questions, some related to data collection and measurement and others related to the selection of a forecasting method or model. For trend identification, the basic question is whether the outdoor recreation participation data collected in the past is indicative of trends or merely reflects a wide range of differences in data collection methods.

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[1] Paper presented at the National Outdoor Recreation Trends Symposium, Durham NH, April 20-23, 1980.

[2] Department of Park and Recreation Resources, Michigan State University; Department of Agricultural and Resource Economics, University of Vermont; and Department of Natural Resources, Cornell University; respectively.

Forecasting involves the application of a model to an existing data base. In evaluating forecasts one must be concerned with both the quality of the data base and the tenability of the assumptions underlying the forecasting model.

Our ability to predict where we will be in the future depends significantly on knowing where we were in the past and where we are today. Thus, we begin with a discussion of trend identification and trend measurement before delving into the more complex field of forecasting.

TREND IDENTIFICATION

Trend identification is based upon past measurements of outdoor recreation participation (and related events) and present monitoring of these same variables, as a guide to predicting future participation rates. Attempts to identify outdoor recreation trends from secondary data sources have met with numerous problems.

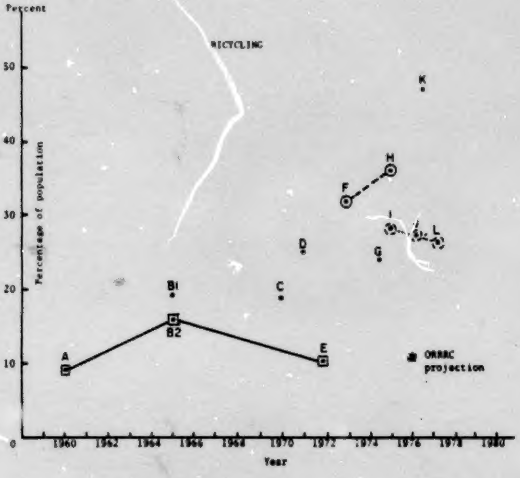
Trend identification is dependent upon reliable and valid data collected in a consistent manner over time. For outdoor recreation most basic data is either not collected, is inaccurate due to poor measurement techniques, or is collected inconsistently over time using non-comparable methods. Much historical data is not documented sufficiently to permit evaluations of its quality or applicability.

The state of existing outdoor recreation data bases suggests that trend identification and forecasting have not been the primary purposes of most data collection efforts. Most data collection is aimed at solving current problems. Potential use of such data for trend identification and forecasting is largely accidental. A good case in point is the series of nationwide outdoor recreation participation surveys.

Trend Identification from Nationwide Participation Surveys

Bevins and Wilcox (1979) have examined 22 national outdoor recreation participation surveys conducted between 1959 and 1978 in an attempt to identify trends in American's participation in a variety of outdoor recreation activities. The surveys examined include the Outdoor Recreation Resources Review Commission (ORRRC) studies, five nationwide surveys sponsored by BOR (now HCRS), three national camping market surveys (USFS), four surveys of hunting and fishing (USFWS) and seven market surveys conducted by private organizations.

Trend data for 28 different activities were examined, revealing some trends and a host of trend identification problems. The difficulties involved in discerning trends from nationwide surveys may be illustrated by an example. Figure 1 graphically depicts trend data for bicycling participation from 13 different surveys. Lines connect those surveys employing similar methods. The sponsor and methods for each survey are summarized in Table 1.



Symbol	Contact	Recreation period	Age of respondent	Position in household
	Characteristics of survey			
◌······◌	Personal	Year	18+	Individual
⊙- - - -⊙	Telephone	Year	All	Individual
▣——▣	Personal	Summer	12+	Individual

A, B, C, . . . letters refer to surveys as identified in Table 1.

Figure 1. Bicycling—trend lines connecting surveys with similar methodologies, 1960-77.

SOURCE: Bevins and Wilcox (1979)

No clear trend emerges for bicycling. Participation rates range from a low of 9 percent in the 1960 ORRRC survey to a high of 47 percent in the most recent BOR (HCRS) telephone survey. Some of the differences are partially explainable by differences in methods, survey populations, or the period for which data was requested. We expect participation rates from surveys of year-round activity to be higher than for surveys restricted to the summer months. Studies including younger age groups should yield higher participation rates in youth-oriented activities than surveys of adults. Other differences in measured participation rates over time may reflect legitimate trends. Sorting out which differences are due to methods and which are the result of trends is a difficult, if not impossible, task.

Table 1.--BICYCLING-participation rates according to nationwide recreation surveys, 1960-77.

			Characteristics of survey					
Code	Year	Name	Type of bicycling	Contact	Recreation period	Age of respondent	Position in household	Percent of population participating
(A)	1960	ORRRC	All	Personal	Summer[a]	12+	Individual	9
(B1)	1965	BOR	All	Personal	Year	12+	Individual	19
(B2)	1965	BOR	All	Personal	Summer[b]	12+	Individual	16
(C)	1970	BOR	All	Mail	Year	12+	Individual	19
(D)	1971	BOR	All	Personal	Year	10+	Individual	25
(E)	1972	BOR	All	Personal	Summer[a]	12+	Individual	10
(F)	1973	Nielsen	All	Telephone	Year	All	Individual	32
(G)	1974-75	TGI	All	Personal	Year	18+	Individual	24
(H)	1975	Nielsen	All	Telephone	Year	All	Individual	36
(I)	1975	TGI	All	Personal	Year	18+	Individual	28
(J)	1976	TGI	All	Personal	Year	18+	Individual	27
(K)	1976-77	BOR	All	Telephone	Year	12+	Individual	47
(L)	1977	AFI	All	Personal	Year	18+	Individual	26

[a] The summer period is June-August.

[b] The summer period is June-Labor Day

SOURCE: Bevins and Wilcox (1979)

Privately sponsored market surveys have shown greater consistency in methods than those sponsored by BOR. Nielsen measured an upward trend in bicycling between 1973 and 1975. Studies by Simmons Market Research Bureau (TGI) and the American Forest Institute (AFI) indicate a slight downward trend since 1975. The BOR surveys illustrate a rather amazing variety of methods and results, providing little guidance for trend identification.

For selected other activities long term trends are more readily identified. Camping exhibits a gradual upward trend in all data series (Fig. 2) and hunting shows a fairly consistent gradual decline since 1960 (Fig. 3). Bevins and Wilcox (1979) report similar graphs for participation in 28 activities and sales of selected recreation equipment. The interested readers should consult that report for further details.

Influence of Survey Methods on Results

Examination of these nationwide studies may tell us more about the effects of alternative survey designs than about trends in participation. Unfortunately few users of the data produced in these surveys carefully examine the underlying methods in order to accurately interpret and evaluate the results. Participation rates are often reported without specifying the time period represented, the age groups included, the data collection method, the sample size, and other pertinent information. The resulting figures are thus prone to misuse.

Although we know that the methods employed will affect survey results, methodological research to date does not yield conclusive information on the magnitude of these effects. In comparing surveys conducted on different populations at different points in time, it is impossible to separate methodological effects from trend effects. A clearer picture of the potential influence of methods upon results is best obtained through controlled experimental designs. Little such research has been carried out with respect to recreation participation surveys, although some guidance is available in the general survey research literature.

Lacking controlled experiments, some insight may be gleaned by comparing surveys with similar methods conducted during the same year. This opportunity was provided in 1977 when both HCRS and NE-100[3] conducted surveys of outdoor recreation participation. Stynes (1979) addresses questions of survey comparability in the two studies.

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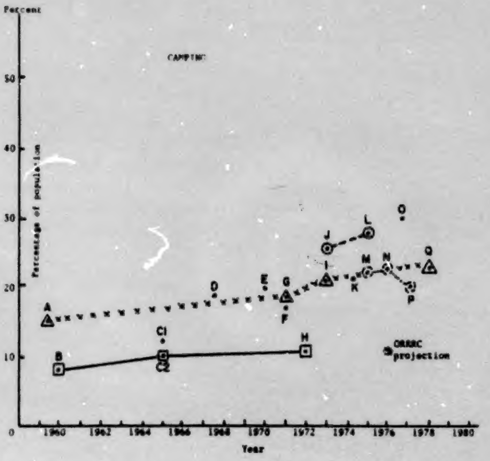
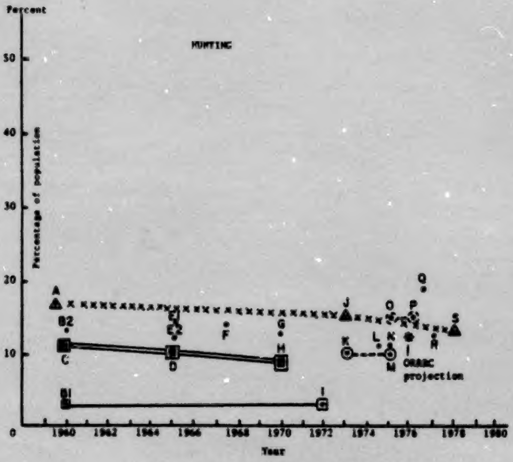
[3] NE-100 is a Northeastern Regional Research Project examining "Recreation Marketing Adjustments in the Northeast."



Symbol	Contact	Recreation period	Age of respondent	Position in household
	Characteristics of survey			
⊙·······⊙	Personal	Year	18+	Individual
⊙- - - -⊙	Telephone	Year	All	Individual
⊡——⊡	Personal	Summer	12+	Individual
△x x x x△	Personal	Year	18+	Head

Figure 2. Camping—trend lines connecting surveys with similar methodologies, 1959-78.

SOURCE : Bevins and Wilcox (1979)



Symbol	Contact	Recreation period	Age of respondent	Position in household
	Characteristics of survey			
⊙·······⊙	Personal	Year	18+	Individual
⊙- - - -⊙	Telephone	Year	All	Individual
⊡——⊡	Personal	Summer	12+	Individual
■——■	Personal	Year	12+	Individual
▲x x x x△	Personal	Year	18+	Head

Figure 3. Hunting—trend lines connecting surveys with similar methodologies, 1959-78.

SOURCE: Bevins and Wilcox (1979)

The NE-100 survey included persons 18 years of age and older living in the Northeastern United States, while the HCRS survey was national in scope and included individuals 12 years and older. By selecting only those national survey respondents 18 or older and residing within the Northeast, a subsample comparable to the NE-100 population was obtained. Allowing for sampling errors in the two surveys we would expect (at a 95% confidence level) that the estimates of participation in outdoor recreation activities from the two surveys would be within from two to four percent of each other. Table 2 shows this to be the case for activities that were defined in a similar manner (those above the dotted line).

Of the 22 activities included in the NE-100 survey and 30 in the HCRS study, only 12 are directly comparable. Of these dozen activities, only picnicking reveals differences significantly greater than sampling error tolerances. The variation in the definition and grouping of activities below the dotted line (Table 2) illustrates a common problem in comparing the results of two surveys. When definitions or groupings of activities change even slightly from survey to survey or year to year, few clues about recreation trends for these activities can be discerned.

Differences in recall periods, response rates, question wording, question sequencing, timing of the survey, and a variety of method-related variables will also affect survey results. Examination of the variety of nationwide survey methodologies suggests that many differences in survey findings over time are due to methodological differences and are not necessarily indicative of outdoor recreation trends.

This means that those who use survey data must exercise caution in their interpretation and application. As a guide we offer a checklist of factors to consider in comparing or evaluating outdoor recreation survey results for the purpose of identifying trends (Table 3).

In using a given survey result for a planning or management decision both the quality of the survey methods and the generalizability of the results to the situation at hand must be evaluated. In trend identification it is important that each survey employ comparable methods on comparable populations. Differences in outdoor recreation participation measured in two surveys may result from different survey populations, different contact methods, or minor differences in question wording or recall periods. Differences may simply reflect sampling error, may be due to non-sampling errors, or may be indicative of a trend.

TABLE 2. -- COMPARISON OF HCRS AND NE-100 OUTDOOR RECREATION PARTICIPATION ESTIMATES

NE-100		HCRS	
Activity	Percent Participating	Percent Participating	Activity
Bicycling	42	42	Bicycling
Boating (sailing)	11	14	Sailing
Golfing	16	13	Golf
Hunting	11	13	Hunting
Picnicking	60	69	Picnicking
Skiing (downhill)	11	9	Downhill Skiing
Skiing (cross country)	4	3	Cross Country Skiing
Skiing (water)	10	12	Waterskiing
Snowmobiling	8	10	Snowmobiling
Ice Skating	22	24	Ice Skating outdoors
Tennis	30	30	Tennis outdoors
Canoeing	12	13	Canoeing, Kayaking, River Running
Fishing (freshwater)	24	60	Fishing
Fishing (saltwater)	19		
Boating (motor)	11	32	Boating (other)
Camping (RV)	11	20	Camping in a developed area
Camping (tent)	16	14	Camping in a primitive area
Camping (backpack)	8	[illegible]	Hiking or Backpacking
Hiking	25		
Jogging	27	68	Walking or jogging for pleasure
Motorcycling	11	21	Driving vehicles or motorcycles off-road
		63	Outdoor Pool Swimming or Sunbathing
Swimming	59	48	Other Outdoor Swimming or Sunbathing

SOURCE : Stynes (1979)

FORECASTING

Inconsistencies in data collection have made trend identification difficult. Since trend data is a basic input to forecasting models outdoor recreation forecasting has been similarly constrained. The lack of time series data on recreation participation and explanatory variables has limited the types of forecasting models that might be used. In evaluating a forecast one must evaluate the accuracy of the data inputs (the base period figures, for example) and the validity of the forecasting model assumptions.

Given a set of historical data, different models applied to this data may yield different results. Differences in forecasts will be due to the different assumptions of each model. An understanding of these assumptions is essential to evaluation of the forecast. Ideally one evaluates the tenability of the various assumptions for the situation under study in order to evaluate the applicability of alternative models. Practically, questions about the quality or availability of data inputs for outdoor recreation have often preempted evaluation of forecasting model assumptions themselves.

Recreation Forecasting Methods

There are a variety of both qualitative and quantitative forecasting models to choose from. Martino (1972) provides an excellent summary of long-range technological and social forecasting techniques and Wheelwright and Makridakis (1973) review shorter range techniques widely applied in business management.

Moeller and Echelberger (1974) review the forecasting techniques most often applied in outdoor recreation. These tend to be middle-range forecasts. For predicting future levels of outdoor recreation participation, two basic types of forecasting models dominate: (1) trend extension models and (2) structural models relating participation in outdoor recreation to explanatory variables that are more readily forecasted. Each method has advantages and disadvantages.

Trend Extension

Trend extension follows naturally from trend identification and monitoring, and is highly dependent upon the quality and consistency of trend data. As its name implies, the method simply involves the extension of trends as revealed in historical measurements of use or participation. The method works well as long as the underlying forces producing a given trend do not change significantly. This assumption is generally valid for making projections one to three years into the future

TABLE 3: CHECKLIST FOR EVALUATING OR COMPARING OUTDOOR RECREATION SURVEYS

1. What is the study population?
    - the study region
    - the minimum age for inclusion
2. What is the method of contact?
    - telephone
    - personal interview
    - mailed
    - on-site or household design
3. For household designs, how was the respondent selected within the household?
    - person who answers
    - household head
    - randomly selected
    - based upon quotas
4. How successful was the sampling design?
    - representativeness of the sample
    - response rate/possibility of non-response bias
    - weighting procedures
5. Sampling Errors
    - are confidence intervals reported for population estimates?
    - on how many respondents is each figure based?
6. When was the survey conducted?
    - time of year
    - interviewing on weekends-weekdays; afternoons-evenings?
7. Measurement
    - definition of recreation activity categories
    - time period for which data is requested
    - length of recall period
    - wording of questions
    - open or closed-ended questions
    - question sequencing
8. Reporting of Results
    - Are methods clear enough so that you could replicate the study?
    - Are non-sampling errors discussed?
    - Are study limitations discussed?

and when the system under study is reasonably stable.

Even in trend extension, one must consciously or unconsciously make assumptions. Figure 4 illustrates several distinct projections based upon observations from three time periods. With data for only three previous years, assumptions of a linear, exponential or logistic (S-shaped) growth pattern all seem reasonable. These different assumptions yield quite different projections. Selection of the form of the equation must be based upon logical as well as statistical considerations. Do we expect the trend to exhibit a linear, exponential, or logistic growth pattern during the years for which we are projecting? Too often linear models are selected based upon statistical convenience or ignorance of alternative growth curves.

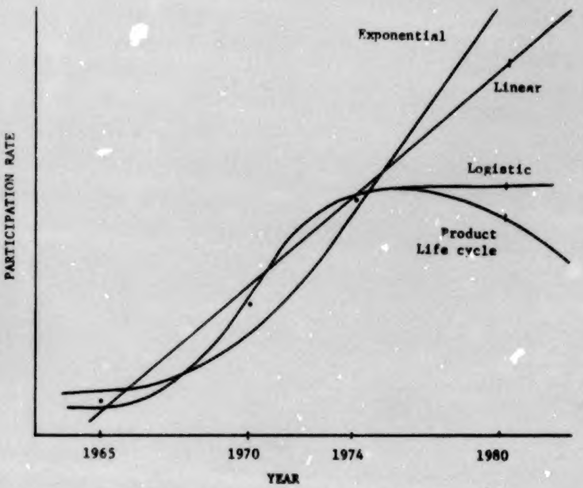


Figure 4. Trend Extension - Alternative Growth Equations

In fact, very few processes grow linearly. Logistic and exponential growth are much more characteristic of population and diffusion processes. Product life cycle curves often exhibit logistic patterns of growth, usually with a decline towards the end of the life cycle. We expect the adoption of outdoor recreation activities to exhibit similar patterns of growth.

The advantage of trend extension methods is their simplicity. However, these methods do not address the underlying forces that are producing the trend. Clearly an understanding of these forces should result in much better and much more useful forecasts, especially within a changing environment.

Structural Forecasting Models

More complex models are generally required to forecast further than five years into the future. In this case the assumption that the pattern of causal forces behind the trend remains unchanged no longer holds and an understanding of these forces becomes an important component of the forecasting model.

The most widely applied outdoor recreation forecasting model (other than seat of the pants) is the two step linear regression technique. The method was applied in the ORRRC studies (Report #26) and has subsequently been refined and further expounded by Cicchetti (1973) among others.

For a person with a given set of characteristics and recreation opportunities his or her probability of participating in a given recreation activity is estimated in the first step. Then in the second step the frequency of participation is estimated for those who participate. Both steps employ linear regression techniques to estimate coefficients in an equation of the form:

y = f(socioeconomic characteristics,
recreation opportunities,...)

where y is the probability of participating in the first equation and the frequency of participation in the second. Recreation survey data is used to statistically estimate the model parameters and the resulting equations are applied to forecasts of each independent variable in order to forecast future participation.

The independent variables are selected based upon their influence on participation and the ease with which they may be measured and forecasted. Age, income, and gender have proven to be the best predictors of outdoor recreation participation in such models. These variables are convenient for forecasting since predictions of future age-sex structures, and income levels are generally available. More recent applications have incorporated supply and price variables, although measurement and forecasting of these variables are more problematic.

The merits of these models, their problems, and the underlying assumptions will be discussed using the ORRRC projections as an example.

Although accuracy should not be our prime criterion for judging forecasts[4], the evaluation of how close these forecasts come to predicting 1976 participation rates will shed some light on the two-step linear forecasting model.

Evaluation of the 1976 ORRRC Projections

Brown and Hustin (1979) evaluated the ORRRC projections by comparing them with participation rates measured in the 1976 HCRS national telephone survey. A comparison of projected versus measured participation rates finds that the ORRRC study grossly underestimated participation in virtually all activities. For many activities the measured 1976 participation rate is more than double the rate projected by ORRRC (Table 4).

Table 4. Comparison of Proportion of Persons 12 Years and Older Projected to Participate in Outdoor Activities in 1976 vs. Number Participating in 1976 Survey

Activity	Projected by ORRRC[1]	Participating in 1976 Survey	z score[2]
Driving for pleasure	56%	69%	28.68
Swimming	55	70	31.38
Walking for pleasure	37	68	67.51
Sightseeing	47	62	32.76
Picnicking	57	73	33.45
Fishing	32	55	51.33
Bicycling	11	47	122.04
Attending outdoor sports events	27	61	81.26
Boating (not canoeing or sailing)	28	35	15.73
Nature walks	16	49	95.24
Hunting	14	20	18.23
Camping	11	37	88.67
Horseback riding	8	15	27.59
Water skiing	9	17	29.11
Hiking	8	28	78.15
Attending outdoor concerts, plays, etc.	12	40	90.89

[1] From ORRRC Study Report 26, pg. 27.

[2] Normal approximation of a binomial proportion, corrected for continuity (Snedecor and Cochran, 1973). The null hypothesis of equal proportions projected vs. surveyed can be rejected for $p \geq .99$ at $z = 2.33$.

SOURCE : Brown and Hustin (1978)

The ORRRC projection model was based upon six independent variables: (1) income, (2) education, (3) occupation, (4) age-sex, (5) urban-rural residence, and (6) leisure time. Relationships between participation in each activity and the six variables were estimated based upon a 1960-61 survey of outdoor recreation participation. A linear model was assumed. Projections to 1976 were then made for each of the six independent variables and the model was applied to these projections to derive the 1976 estimates of participation for each activity.

Three types of errors are involved in this forecasting process.

1. Measurement, sampling and other errors in the 1960 and 1976 surveys.
2. Errors in the forecasts of the independent variables.
3. Model specification errors.

The accuracy of a forecast always depends upon the accuracy of base period fugures (1960 in this case). It should be noted that the model parameters were determined solely from a single survey conducted in 1960-61. This survey is subject to measurement and sampling errors. In evaluating the accuracy of the forecast, we also assume that the participation rates measured in the 1976 HCRS survey are accurate.

A more subtle difference between the 1960 and 1976 surveys is easily overlooked. The ORRRC projections are based upon a survey of activity between June and August 1960. Projections are therefore participation rates for the summer months of 1976. The 1976 HCRS survey measured participation over the entire year. It is not possible to separate out the summer months and hence any comparison of the ORRRC projections and the 1976 survey must be based upon assumptions about differences between summer and year-round participation rates.

We should expect summer rates of participation (i.e. the proportion of the population participating at least once during that period) to be less than year-round participation rates. The magnitude of these differences will be greater for activities with substantial non-summer use (eg. fishing and hiking) and relatively insignificant for predominantly summer activities like swimming and boating. In the following we assume no difference between summer and year-round participation rates.

The second source of error is in the projections of each independent variable. Comparing the ORRRC projections of these variables with actual estimates for 1976 reveals that income, education, occupation, and age-sex distributions were projected fairly accurately. No comparable 1976 estimates are available for residence or leisure time, making the projections somewhat suspect.

Model specification errors are the most serious in this case. A principal assumption of the two step method is that the relationship between the explanatory variables and

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[4] Forecasts should be judged on their usefulness in decisionmaking, not their accuracy (Martino 1972).

participation, as estimated from 1960 data, continues to hold in 1976. Specifically, this assumes constant participation rates by demographic segments over time. Any change in participation rates predicted by the model must be due solely to changes in the explanatory variables. The increasing participation of women in many outdoor recreation activities (Bevins 1979) is one example of a direct contradiction to the model assumptions.

Model formulations that include supply and price variables are an improvement, but introduce additional measurement problems. The linearity of the relationship might be questioned, but logit and probit forms of the participation equation do not yield much improvement (Smith and Munley 1978). The use of these types of models for forecasting involves six common problems.

(1) A failure to include substitution effects. Separate and independent equations are generally developed for each outdoor recreation activity. A few of the models that include a price variable also include prices of close substitutes or complements, but these are rare (Talhelm 1973). Recent research into substitution among outdoor recreation activities does not yet provide much help for forecasters.

(2) Difficulty of incorporating supply factors. One's likelihood of participating in a given recreation activity is clearly related to the quality, quantity and price of available opportunities. Cicchetti (1969) and Beaman (1976) discuss the inclusion of supply variables and the accompanying problems.

(3) Reliance on cross-sectional data. Cross-sectional surveys are clearly not the best way to measure change or the forces producing change. Projecting 16 years into the future based upon observations during a single year is clearly suspect. Brown and Wilkins (1975) demonstrate that more accurate forecasts can be developed using structural models estimated from time series data, when this data is consistent and accurate and corresponding time series data is available for the explanatory variables. Unfortunately such data rarely exists.

(4) Other missing explanatory variables. The identification of explanatory variables continues to be a subject for research. For long-term forecasting a variety of social and economic variables seem relevant. Changing value systems, energy policies, family structures, and leisure time patterns are seldom included in recreation forecasting models. West (1977) suggests the addition of variables related to fad and fashion in leisure activity.

(5) Aggregation problems. Selecting the appropriate aggregation level continues to trouble recreation planners and forecasters. Regression models are generally estimated using data about individuals and then applied to aggregate populations. The ORRRC and most other similar projections apply the resulting equations to forecasts of the means of the explanatory variables.

The participation rate of a person with average income, average age, and an average amount of leisure time will not necessarily be a good estimate of the participation rate of the population as a whole. A more valid technique is to develop rates of participation for various population subgroups and apply these to the forecasted numbers of people within each subgroup. This requires future distributions of the population over all explanatory variables rather than just the projected population means for each.

(6) Statistical rather than process models. The structural models developed to date are for the most part statistical rather than process models. They do not capture the underlying decision processes that determine outdoor recreation participation. An individual clearly does not take a weighted sum of his income, age, occupation, and leisure time in deciding whether or not to participate in an activity. These models therefore yield little incite into the dynamics of outdoor recreation participation decisions.

Systems and simulation techniques are better suited to the identification of feedback effects, timelags and other dynamic characteristics of recreation systems. An examination of activity adoption, participation, and dropout decisions in the light of changing family structures and recreation opportunities might yield a better understanding of the dynamics of recreation participation. Models relating participation to equipment sales also seem promising.

CONCLUSIONS

The stimulus for this paper was the question of whether outdoor recreation participation data collected in the past is indicative of trends or merely reflects differences in data collection methods. We must conclude that some data series indicate changing patterns of participation and others are the result of measurement errors or methodological differences. The problem is that the task of telling which is which is not an easy one, and in many cases is impossible.

Those attempting to divine trend information from published research must exercise considerable caution. An understanding of data collection methods and an ability and willingness to dig into documentation of survey results in order to evaluate the quality and applicability of the findings is advised. Better data collection techniques and documentation of results are also needed.

Multiple sources of trend data should be sought and compared before drawing conclusions. Consistency and comparability of findings from different sources increases our confidence in the conclusions. This is especially true when distinct methods independently yield similar results.

Many of our recommendations for improving data collection, trend measurement and forecasting have been made before. The need for more consistent and comparable data collection efforts over time is clear. Before this can happen the importance and utility of trend information and forecasts must be recognized. There have been few systematic efforts to collect outdoor recreation data for the purpose of identifying trends. Available data has been collected primarily for other purposes. The data requirements for trend identification and forecasting are somewhat unique. Unless data is collected for these purposes the chances are that it will be inadequate or useless for forecasting.

Given the costs of data collection and the vast amount of trend data that might be collected, a systematic examination of trend information needs is required. This must be based upon an identification of the kinds of planning decisions that trend information might contribute to, and an assessment of the likely improvement in planning decisions as compared with the costs of data collection. Institutional frameworks must be established to ensure periodic and systematic collection of the data and to develop appropriate information systems to facilitate its wise use.

Research is also needed: (1) to develop clear standard definitions of recreation terms, (2) to improve measurement techniques and develop acceptable measures for variables that are difficult to quantify, (3) to identify variables that may help explain changes within outdoor recreation, and (4) to experiment with forecasting models that more fully capture the processes that are taking place within outdoor recreation.

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THE TREND OF MEASURING PUBLIC USE OF THE NATIONAL PARKS[1]

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INTRODUCTION

Since the outburst of interest in outdoor recreation travel in the period following World War II, measurements of outdoor recreation have been made in many ways. The measurement of outdoor recreation is decentralized activity being carried out by a large number of private and federal agencies with a variety of goals and purposes. Future improvements in federal statistics will partially come from the emergence of a combined strategy for statistical data gathering. Partially due to decentralization, such a strategy has not emerged even though the need for trend data is wide-spread. To envision the characteristics of a more coordinated and cost effective program of outdoor recreation measurement, it is helpful to consider the history of outdoor recreation studies. Changes in studies conducted for the National Park Service (NPS) illustrate a trend with several periods.

Travel and Tourism Studies

From the early 50's to the early 60's, the Federal Highway Administration (FHA) engaged in cooperative programs with state highway departments to collect specific measurements of travel and tourism activity. The primary concerns of these studies were to gather basic data for economic and highway planning. Major national parks were sites for many of these studies.

Because of the relatively narrow applications intended for these studies, the scope of inquiry was limited to a few basic issues. The information collected usually included vehicle type, home town, trip purpose, trip mileage, overnight stays, duration of stay, and trip expenditures. As a result of the narrowness of focus, the comparability between travel studies is surprisingly high.

These travel and tourist studies used entrance station interviews or mailback questionnaires. The brief sets of questions could be completed by the visitor in a few minutes. Appendix A contains information about how field operations were carried out (Cape Cod study of 1963). Appendix B shows several questionnaires used in the Grand Canyon Tourism Study (1953). Several of the studies used identical interview schedules (Grand Canyon and Yosemite studies in 1953).

The findings of the travel and tourism studies were generally reported as descriptive statistics in various tables and figures. The focus was on the market area served by a particular park, the forecast of future use which could be expected from that market area, and the economic benefits of visitation to surrounding areas. The reports vary in quality and tend to assume that the usefulness of the results is self-evident. Descriptive findings are typically presented with expressions like "it is of interest that". . . "interesting to note", and "as reasonably could be expected. . ." (Shenandoah Travel Study, 1952). There is no record of any raw data ever being centrally stored for later use although in one case findings were compared to eight other travel studies (the 1963 Cape Cod survey).

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The travel and tourism studies reflect several advantages and disadvantages of measuring outdoor recreation. Advantages included the narrow focus, general comparability between studies, cost effectiveness of acquiring data, and the use of client participation in the collection effort (FHA funds enabled State highway departments to collect data or hire local people to do the work). Disadvantages included the failure to provide for the common storage of raw data and the failure to document applications of data to planning and management problems. These studies were one-shot studies and were not concerned with the problem of learning about trends.

Travel and tourism studies received lower priority beginning in the early 60's. As planning for the inter-state highway system neared completion, the work of the FHA concentrated more on the problems of urban area transportation planning. But as this particular type of study declined in frequency, a new type of study began to appear.

Visitor Use Studies

The study of travel and tourism had many beneficial effects for the NPS. Among the benefits was the interest stimulated in the visitor as a factor to be treated in both planning and management. The benefit, however, did not come directly from the original travel and tourism studies but from the great variety of "visitor use studies" which were sponsored by diverse interest from many different parts of the agency. These studies tended to be exploratory and responsive to the new curiosity of park staff about the visitor, visitor attitudes and behavior. The visitor use study appeared in several distinct forms.

The user satisfaction study was conducted to gather information needed to evaluate interpretive programs and to gather basic performance data on how well the park was doing its job. These studies often concentrated on the things which visitors liked, found useful, or judged to be of value to them. To the extent that they focused on manageable conditions, these studies discovered that people were more satisfied when the litter was controlled and the trails and facilities were maintained. Often, however, the focus of these studies was vague and they often identified circumstances which were beyond the realm of manageable conditions, e.g. campers were satisfied when other campers were pleasant to be around. Such studies often attempted to measure the perception of environmental quality or determine the meaning of the visiting experience. To this extent, indicators were developed to capture differences in the expressions of feelings, experiences, and perceptions. These types of studies did not lend themselves to comparison because they used a great variety of definitions, concepts, and methods of measurement.

Closely related to the "satisfaction" type of study was the attempt to measure sociological "carrying capacity." Emerging in the early seventies, these studies attempted to parallel natural science studies of resource wear and tear. The sociological measurement problem was to determine when visitor density itself prompts changes in the quality of the visiting experience. These studies were plagued by a variety of confounding conceptual, theoretical, and operational problems. Some visitors, for example, valued having others around while others wanted to avoid people. The "sociological carrying capacity" type of study, however, did serve to sensitize managers to the varying needs of user groups.

The "visitor profile" was yet another form of visitor use study. Characterized by their taxonomic style, these studies grouped people according to various types or styles of behavior, e.g. backcountry users, straight and counterculture users, family users, etc. These studies served to refine statistical generalizations such as emerged from the tourism studies by demonstrating that while the "average visitor" did not exist, there are patterns of behavior that distinguish people from one another in ways that bear on management actions. The focus on differences between visitors is important because it suggests that there can be corresponding differences in management actions. Such studies, for example, contributed to thinking about ways to control potential conflict among visitors by zoning activities. Knowledge of seasonal changes in types of visitors enabled changes to be made in the content of interpretive programs.

One of the most distinctive types of visitor study was the regional, interagency transportation study. These studies attempted to bring the accumulation of many earlier styles of inquiry to bear on outdoor recreation behavior at one time. While few of these were completed (Great Smoky Mountain National Park study in 1975 and Yellowstone-Teton National Park in 1978), they played a key role in the spread of interest in the visitor and impacts of visitation on parks and the surrounding communities.

However, because of the broad focus, the large variety of participants, and wide areas of geographic interest, the volume of survey data collected by these studies grew to enormous proportions. In contrast to the brief tourism studies, the regional visitor use studies pursued answers to scores of questions ranging from general recreational activities to social attitudes. A major result of this type of study was the sensitivity it created about cost effectiveness (time and monetary cost to the agency as well as reporting burden on the participating public). It seemed evident that if information about the public as a consumer group was to be applied routinely to national park management, it would have to be timely and through a more limited, cost effective method.

Throughout the sixties and into the mid-seventies, various forms of visitor use studies have been conducted on behalf of the NPS. Throughout this period, unfortunately, an integrated body of organized knowledge failed to emerge even though great effort was invested in the task. If anything, the great diversity of effort suggested the need for establishing some centralizing control to insure economy of effort.

Research Studies

The proliferation of ad hoc studies during the 60's served to bring the need for a more systematic program of studying the visitor and visitor behavior to the attention of NPS management. In the early 70's, efforts were completed to establish several regional centers of social-scientific research in the NPS.

The Cooperative Park Studies Units were created at various universities for the purpose of blending the intellectual power of academia with the apparently intractable difficulties of resource management.

Centralizing the expertise for social science work served a variety of purposes. At last there were places where consultation could be acquired, where research coordination could be made, where quality control over study design could be exercised, and where findings and raw data could be assembled for later use. The institutional formalization of social science activity prompted greater research coordination and indirectly contributed to the assembly of interdisciplinary perspectives. These centers served as a focus of communication between the academic and governmental communities and achieved some degree of reorientation of effort for their mutual benefit. In addition, the monumental task of inter-agency coordination was carried out by these centers, eliminating some redundancy and improving the transfer of social science technology to NPS management at minimal cost, e.g. the computerized backcountry permit system developed by the Social Science Program in the Pacific Northwest Region, NPS.

Throughout the period of growing experience and mobilization of effort, however, a persistent problem served to confuse the establishment of more viable social science goals: who was to be served by the application of social science to management and planning, and how? Was the level of application to be at the site, within the region, or at the national level? Nowhere is the conflict of applications more evident than in various public opinion polls which were conducted.

Public Opinion Polls

This type of work differs from other visitor studies in that the population studied is the general rather than the visitor population. The methods, therefore, tended to be off site telephone and personal interviews. Such studies were needed because studies done for research purposes or on behalf of unit managers did not yield information needed about broader problems.

From 1968 to 1972 a variety of national and regional public opinion polls were designed and carried out for the purpose of expanding knowledge of participation in and opinions about outdoor recreation, a purpose which was not being served by other studies. From these studies valuable perspectives about the relationship between visitors and nonvisitors was gathered and made available to upper level management. In addition, a series of short "People in the Parks" reports were prepared to explain the general usefulness of the data to planners and managers. Theoretically, information would "filter down" until it found an application. The reports were propagated because they "may also be useful to other divisions for any number of purposes. . . How it may be useful to each division will, of necessity, be decided within the division."

Unfortunately the expected integration of general survey findings into planning and management documents did not spontaneously happen, possibly because there were no experienced social scientists available to help other professionals find the meaning of general findings for specific actions. On the other hand, social scientists themselves may not have had sufficient experience in the work of planning and resource management. Although much effort was put into the task of delivering findings to other professional groups, social scientists often stopped short of saying exactly how information was to be used.

Discussion

The preceding account of studies done for the National Park Service represents one viewpoint on how social science work was carried out and what was accomplished over the years. While many subjects have been explored and a variety of study tactics have been tried, the cumulative impact of the findings on planning and management is less than might have been expected judging by the effort (time and cost) invested. The failure to communicate better could be due to a variety of problems such as the delays necessary to accomplish the studies themselves, lack of general experience of scientists and planners in working together on managerial problems, the artificial "freezing" of data in the text of a written report, failure to focus on comparative and trend data, and mismatched expectations of what studies can and cannot do. While studies can make crucial impacts on thinking, study findings too often were applied cosmetically if at all.

Up to the present both the scientific and managerial communities have been learning about the role of social and economic data in natural resources management. While the period of learning is far from over, a period of applications needs to be started. The tactic of gathering data by studies may itself be a problem. While scientific studies will continue to be essential sources of new knowledge, studies may not represent the tools needed to effectively bring information to planners and managers. Other ways of gathering and communicating the use of information need to be explored.

The coming decade promises to bring revolutionary changes in the economy which will alter previous circumstances in which out-door recreation has occurred. The context of planning will soon be unlike what it has been in the past. The rate and degrees of change may be so fast and extreme that conventional studies will be inadequate to assemble required data for planning and management. In the future, natural resources planning and management will rely more heavily on limited programs to monitor public use and an improved system of federal statistical reporting about out-door recreation.

Monitoring Public Use

From the limitation of studies as a method of collecting information for park management, a complementary method was developed in the late seventies: continual monitoring of public use. While not an evolutionary step beyond the ad hoc study, continual monitoring serves purposes which cannot be as effectively served by conventional studies. While monitoring must be an activity which is restricted to collecting a few variables, the benefit of monitoring is that it yields comparable data on a continuing basis. The focus of monitoring is on change and, more importantly, comparative change. This is an important development in the effort to bring social science to bear on park planning and management because with this type of information it is possible to focus on the trends of public use and the question of what differences exist between types of areas, geographic locations, and forms of management.

The content of the current public use monitoring program under development by the NPS is limited to a few items which can be quickly gathered using a free-form interview schedule. Questions include (1) where people entered the park, (2) when they entered, (3) how often they come, (4) where they live, and (5) what other places they have visited on their trip. In addition, the visitor is asked "on your first day in the park, (6) where did you go, and (7) what did you do?" This last question is a general probe designed to recover the details of the visit using a notational coding method. For the purpose of reducing costs, this type of interview is designed to be conducted by members of the park staff who are specially trained by the NPS Statistical Office. Seasonal or permanent staff members gather the data in the context of their day-to-day contacts with visitors. The interviews serve to give visitors an opportunity to ask questions and give comments (both positive and negative) about their visit and to give park staff a systematic way to learn about the visitor and the pattern of park use. All data are carefully edited and errors are returned to the interviewer for training purposes.

The major source of cost effectiveness, however, is the entry of data into a data base management system (DBMS) which is accessed by conventional English commands (INQUIRE). The timeliness of data collection and editing creates a "live" foundation of statistical data for planning and management. Rather than prepare reports on findings, park service statisticians prepare a library of graphic and tabular outputs which is made available to clients of the system as needed (Computer Assisted Management Program - CAMP). Parks draw data interactively using conventional computer terminals. Use of the system and its application to various kinds of work are explored in "Applications Clinics" conducted at the parks by members of the agency statistical office.

One of the major limitations of the monitoring type of activity is the question about the quality of the data. If such programs are to be successful in terms of financial cost, they must take advantage of every opportunity to economize. Asking the unit manager to administrate the task with existing staff is a shortcut which eliminates one of the major expenses of this work. Although NPS field staff are not primarily assigned to conduct interviews, most have shown a genuine interest in gathering this kind of information. One of the major reasons for strong field support is the dedication of the monitoring effort to gather basic information commonly recognized as essential to routine park management. The availability of data within ten days of collection also serves to stimulate interest in the quality and utility of the findings. To the extent that active interest in the findings can be maintained by timely production of findings and to the extent that training and careful editing of data can be completed, the monitoring program can result in data of respectable quality for the purpose to which it is applied.

As the concept of monitoring as a tool of park administration spreads, more areas will be added to the system and comparative, aggregate, and time series studies will be conducted. As interest in data based management grows, new applications will be found. Program and policy evaluation will become easier and more timely as actions are reviewed for effects which are detected by the monitoring of public use.

By monitoring public use on a limited basis, the Park Service engages the active participation of visitors in the park management process. However, to insure the application of data to the largest number of managerial problems faced by the federal government, the data collected by the National Park Service needs to be a part of an integrated statistical effort.

Federal Statistical Policy and Outdoor Recreation Statistics

The current federal activity in out-door recreation measurement suffers from a variety of problems. Standardization of procedures and documentation of methods have not been fully completed. Training and quality control over field practices needs to be improved, particularly in areas where staff resources are minimal and conventional sampling is difficult to carry out. The frequency of "estimates" as a basis for determining certain figures is much greater than is desireable. At the same time, the breadth of the current statistical accounts (generally visitor hours and visits) is of slim utility for any sort of realistic planning and of little use for site management.

A major element of the problem is more or less common to all federal offices working with minor statistical programs. A situation of perpetual negative feedback tends to exist: (1) lack of resources (staff and money) requires shortcuts in statistical procedures; (2) shortcuts in statistical procedures lower validity and reliability of data; (3) data low in validity and reliability cannot be used to solve managerial problems; (4) data which do not solve problems do not receive priority for resources; (5) lack of resources. . . Although all agree that good public use data are essential to planning and management, the negative feedback cycle creates a situation which tends to maintain statistical systems at subsistence levels.

The problem, however, is widespread. In July, 1978, the U.S. Department of Commerce issued A Framework for Planning U.S. Federal Statistics, acknowledging the various problems of decentralization generally, and specifically the numerous difficulties of minor statistical programs such as the general efforts to measure trends of outdoor recreation.

It seems safe to predict that increases in resources for out-door recreation statistical programs will not change without improving the programs themselves. Fortunately, this can be done. To the extent that a voluntary division of labor is accepted by various agencies, the combined efforts to cover segments of outdoor recreation statistics can be made cost effective. In the past an agency might look into a problem and report certain findings which would have limited utility for or be at odds with the immediate objectives of another agency. The typical response is to launch an additional study/counter-study tendency is enormously costly. Redundancy of effort can be reduced if agency social science professionals guide their agencies toward better coordination. This requires, however, that the same professionals take greater interest in what is being done around them and act to influence the work of other agencies to adequately meet the needs of their parent agency as well.

The National Park Service's effort in this direction include both sharing data it produces and depending more on data produced by other participants in the measurement of out-door recreation. The U.S. Travel Data Center, for example, conducts monthly surveys of travel from a random sample of people in the nation which promises to yield valuable data which is not available elsewhere. Combined with the surveys of national recreation and travel conducted by the Heritage, Conservation, Recreation Service and the Bureau of Census, a formidable body of data for new area and existing site planning is available. National Park Service data are already shared with the Department of Commerce, Federal Highway Administration, and Department of Energy. Current planning work is especially sensitive to the need for information exchanges such as near areas where boundary land exist. Here again, the NPS Cooperative Park Studies Units at various universities have played a key role in improving interagency exchanges by easing the problems of information access. Ideally, creating better access to statistics at the federal and state level, including distribution to places of higher learning, will have a positive influence and will enable basic improvements to be made as higher demand justifies better support for programs to measure outdoor recreation.

Conclusion

Viewed as a series of changing tactics of measuring public use, outdoor recreation studies since WWII reflect a variety of accomplishments and shortcomings. Travel and tourism studies served to stimulate and broaden the interest of planners and managers for information about people. Visitor studies served to satisfy curiosity about a large variety of interesting questions ranging from visitor judgements to attitudes and opinions. Research studies brought methodical thinking to conceptual problems of measuring out-door recreation and sharpened the tools of study. In spite of obvious progress in the ability to contribute to planning and management, the actual adoption of public use data as a factor in planning and management has been limited. Until a better strategy for gathering data about out-door recreation can be developed, the desired impact of public use information on planning and management will not take place.

Studies may not be sufficient to communicate the applications of data to the problems of management and planning. An improved strategy will also involve the idea of continual monitoring of public use. The resulting statistics can be merged into a system which is both useful to the site manager and useful to the managerial concerns of those working at regional and national levels. Many improvements, however, need to be made in the quality of existing statistical programs. These improvements may be made without substantial additional investments if a productive voluntary division of labor can occur among agencies participating in the measurement of outdoor recreation.

These views are offered in the belief that important work has been accomplished but is undervalued. Suggestions are offered in spite of the liklihood that, here too, every solution has a problem.

LITERATURE

Although this paper has not involved direct references to other literature, the reader may have interest in related work. The following references are offered for those with continuing interest:

Buhyoff, Gregory J. 1979. *Evaluation of Current Statistical Reporting Procedures and Recommended Corrective Action*. Statistical Office, National Park Service, Denver, CO.

Carnie, Chere Amie. 1979. "Public Use Reporting in the National Wildlife Refuge System and Recommendations for Improvements". Unpublished mimeo. U.S. Fish and Wildlife Service, Division of Refuge Management Washington, D.C.

Duncan, Joseph. 1975. "Planning the Federal Statistical System--A Historical Perspective." *A Numerator and Denominator for Change*. Technical Paper 37, Department of Commerce, Bureau of Census.

Thoennes, Nancy A. and William H. Key. 1979. "Review of National Park Service Science Research". Unpublished mimeo. Department of Sociology, University of Denver, Denver, CO.

U.S. Department of Commerce, Office of Federal Statistical Policy and Standards. 1978. *A Framework for Planning U.S. Federal Statistics for the 1980's*. U.S. Government Printing Washington, D.C.

APPENDIX A

CAPE COD TOURIST STUDY

	COLUMN	CODE
1. Station	1	_____
2. Date	2-3	_____
3. Hour	4-5	_____
4. Vehicle - Sedan( ) Station Wagon( ) Trailer - Camper( ) U-Haul( ) Boat( )	6	_____
5. State of Registration Mass.( ) R.I.( ) Conn.( ) N.Y.( ) Other_______________ Specify	7-8	_____
6. Car Occupancy Adults Male_____ Female_____ Children under 16 Male_____ Female_____	9-14	_____
7. Where is your permanent residence?_______________ Town State	15-20	_____
If on the Cape / If not on the Cape (A) Do you have a summer residence on Cape Cod? Yes( ) No( )	21	_____
Where_______________ Town	22-23	_____
(B) What is the purpose of your trip? Business and Pleasure ( ) Personal Business ( ) Shopping ( ) Serve Passenger ( ) Recreation ( ) Vacation ( ) Medical, Dental, Education, Church ( ) Social ( ) Work ( ) Other_______________ Specify ( )	24-25	_____
(C) When did you arrive on the Cape?_______________ Mo. Day Time	26-30	_____
If today If prior to today (1) Where did you stay?_______________ Town	31-32	_____
(2) At a motel( ) hotel( ) cottage( ) tent( ) private home( ) other_________ Specify	33-34	_____
(D) What was the purpose of this trip? ( )vacation, ( )recreation, ( )work, other_________ Specify	35-36	_____
What was your major recreational activity? ( )beach, ( )boat, ( )fish ( )scenery ( )other_______________	37-38	_____
(E) Is this a rented car? ( )Yes ( )No	39	_____
(F) Now for my last question, approximately how much did you spend on the Cape? $_______________	40-43	_____

The questionnaires were filled in by the interviewers and coded later in the office. 17,404 vehicles were interviewed out of 62,312, an overall sample of 28.4 percent. In addition to serving the requirements of the study, the stations were selected to insure the safety of the motorists and the interviewers. Wherever possible, sites were so chosen that interviews could be conducted off the road. One station was located at a rest stop. When the interview was completed, each driver received a formal note of thanks explaining the reason for the interview.

APPENDIX B

GRAND CANYON NATIONAL PARK TRAVEL SURVEY

1. Auto
2. Bus
3. Truck
4. Motorcycle

A. Residence:
   1. City or Town________________________ State ________________
   2. State of Vehicle Registration_____________________________
B. Is this trip for: 1.Pleasure___ 2.Business___ 3.Both___________
C. Was your trip to the Grand Canyon the principal purpose for your trip from home? Yes___ No___
D. How many persons in your party?
   (Don't forget the babies and other children)____________________
E. Where were your last two overnight stopping places before entering the Park? If more than one night in either place, then, please write the number of nights:
   a. Last Night____
   b. Night Before____
   c. What type of accommodations did you use during these stops?
      1.Hotel___ 2.Auto Court(Motel)___ 3.Trailer Park____________
      4.Camping___ 5.Friends or Relatives___ 6.Home______________
      7.Other (Specify)_______________________________________
F. Overnight stops while in the Park:
   a. How many nights did you stay in the following accommodations?
      1.Hotel___ 2.Cabin with Bath___ 3.Cabin without Bath_________
      4.Camping___ 5.House Trailer___ 6.Other (Specify)___________
   b. CIRCLE your first preference above, if type desired was not available.
   c. If you are not stopping overnight, are you leaving the Park because accommodations were not available? Yes___ No________
G. For the ENTIRE TRIP, please estimate:
   a. How many days will you be gone from home? __________________
   b. How many miles will you travel on the entire trip? __________
   c. How much will you spend on your entire trip? ________________
H. For that portion of your trip in Arizona, please estimate:
   a. How many days will you stay in Arizona? ____________________
   b. How much will you spend in Arizona? ________________________
I. During your stay in the Park and while enroute to and from the Park, please estimate how much you and the members of your party will spend in this GENERAL VICINITY for the items listed below: (Outer limits of this "general vicinity" includes such places as Prescott, Ashfork, Williams, Flagstaff, Cameron, St. George, Cedar City and Panguitch)

(NOTE: Include Credit Card Purchases)	TO NEAREST DOLLAR
Food	$______________
Lodging	$______________
Gas and Oil or Transportation	$______________
Other(Park Entrance Fee,souvenirs,etc.)	$______________
TOTAL	$______________

J. Where do you plan to make your next overnight stopping place after leaving the Park? No. of days
   a. Town and State______________________this stop_____________
   b. Please check the type of accommodations you expect to use:
      1.Hotel___ 2.Auto Court(Motel)___ 3.Camping___
      4.Trailer Park___ 5.Friends or Relatives___
      6.Home___ 7.Other (Specify)______________________________

APPENDIX B (continued)

K. Show order of preference with a 1, 2, 3, for the THREE features which appealed to you most in the Park:

a. Enjoyment of Scenery_______
b. Mule trip into Canyon______
c. Climate___________________
d. Hiking ___________________
e. Camping___________________
f. Horseback Riding___________
g. Ranger Talks_______________
h. Indian Dances______________
i. Wild Life__________________
j. Evening Entertainment_______
k. Other Attractions (Specify)___________________________

L. Have you visited or do you plan to visit the other Rim of the Grand Canyon on this trip? Yes___ No___

COMMENTS OR SUGGESTIONS REGARDING YOUR VISIT TO THE PARK WILL BE APPRECIATED:____

____

____

____

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DATA BANKS FOR RECREATION SUPPLY AND PARTICIPATION[1]

E. M. Avedon & S. L. J. Smith[2]

Data archives and data banks have become increasingly important as more researchers begin to examine trends. Characteristics of data banks, sources of bias in secondary data sources and important trends in data banks are described. The paper concludes with advice about using data banks.

INTRODUCTION

Studying outdoor recreation trends presumes a source of historical information upon which description and forecast of trends can be based. In the past, forecasters relied on private sources of data, on access to private and public agency records, and on published tables and statistical documents archived in research libraries for these purposes. A relatively new source of information (primarily but not exclusively quantitative) has become more accessible to recreation researchers in the last decade, namely, machine readable data and data archives.

Since World War II, the social sciences have undergone an "information explosion". This explosion is usually evidenced by the dramatic growth in the publication of books and journals. As great as this growth has been, it does not tell the full story. The social sciences, like the physical sciences have become more quantitative, and behind every scientific publication in the social sciences there are quantitative findings upon which the report is based. However, in the social sciences more data are often collected than ever find their way into published reports. This is common practice in many contemporary surveys and historical studies. In fact, many elaborate and costly primary data gathering projects are undertaken without a clear plan for analysis of all data collected in the project.

In the past, such "excess data" would have been destroyed, but today such "excess data" represent a valuable storehouse for future research and planning and policy analyses. Information is stored without analysis or interpretation on punched cards, magnetic cards, paper tape, magnetic disk, magnetic tape, microfilm, and other mechanical or electronic media to facilitate retrieval. Unlike information stored in published form, such as the familiar printed tables of a national census, emphasis in a data archive is on rapid retrieval, custom rearrangement, processing, and summarization. Such flexibility is a boon to the myriad of potential users of any data set. Academics planners, management consultants, entrepreneurs and others can examine and use the same data set for widely differing purposes with equal ease. Although there may be different missions and policies in different machine readable data archives, and although information may vary from bank to bank, usually a data bank does not direct or control the types of information a user seeks. The secret of success and usefulness of data banks, if there is a secret, is to emphasize technology over teleology.

The concept of a data bank took hold in many facets of industrial society over the past thirty years. Airline reservations systems, department store accounting records, warehouse inventories, banking statements -- are just a few well known examples of this phenomenon. However, industrial and commercial data banks are designed for single-purpose use, by highly trained users, based upon rigidly efficient and economic systems. Within the social sciences, it was recognized that data have multiple research uses, and although some potential users may be skilled methodologists, many are relatively unsophisticated users - particularly in academic settings. Thus social science data banks could not be designed as a single purpose entity, but rather had to be designed as "banks" with multiple functions. Furthermore, data elements destined for industrial and commercial data banks were collected and prepared within the objectives of their single purpose systems. Social science data on the other hand continues to be generated through a variety of sources, and each source has its own research "perspective".

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[1] Presented by Dr. Smith at: OUTDOOR RECREATION TRENDS - A NATIONAL SYMPOSIUM, Elliott Alumni Centre, University of New Hampshire, April 20-23, 1980.

[2] Authors are Director and Research Associate, respectively, of the Leisure Studies Data Bank/Banque de Donnees sur les Loisirs, University of Waterloo, Waterloo, Ontario, Canada.

Data banks developed as a practical response to the need to handle a flood of information. One major contributor to this was the rapid development and expansion of computer technology. Social science data in the 1950's and 1960's paradoxically rendered the information generally irretrievable to the unaided researcher. To overcome this, scholars and decision-makers began to cooperate to pool information resources. They found, however, that such a project easily became time-consuming, costly, and involved great practical difficulties. If an individual did not have personal knowledge of a particular information source, the research literature often had to be scanned to track down possible sources. Once the required source of the data had been identified, it was necessary to determine if these data were still in existence, and how accessible they were to the researcher's computing resources. Often it was found that the source had not been sensitive to the possibilities of further analysis on the data collected, and as a consequence, took no pains to store the information in a manner as to allow universal retrieval and re-use.

When such data were available, they were often stored in an idiosyncratic fashion, accessible only to the source, and after a while, not comprehensible even to the source. Coding may have been ambiguous, or worse, undocumented, rendering the data useless. Formats, definitions, and terminology often reflected local, arbitrary conventions. Data documentation might contain mis-codes, missing records, and labels in a foreign language. To clarify, clean, and edit these records required more time, money, and technical expertise and sophistication than most individual researchers have. It became evident, not just to individuals, but also to universities, governments, and other agencies that retaining archivists and related personnel would be necessary to acquire, prepare, store, and retrieve machine readable social science data on a continuing basis. This recognition led to the establishment of the specialized data banks for the social sciences that exist throughout the industrialized world.

Characteristics of Data Banks

The parallel between data banks and research libraries is obvious, but there is a divergence more important than any similarities. Data banks do not attempt to archive all available information related to their specific mission. Each bank has some identified theme, and collects data in keeping with that theme. Sources of information are diverse, to the point that an "outsider" may not immediately recognize the relevance of a particular data set to the archive's mission. For example, the Leisure Studies Data Bank at the University of Waterloo primarily acquires machine readable data concerning leisure-related phenomena. This perspective normally includes survey and administrative data regarding facility or resource use, expenditures, tourist origin and destination information, performing arts audience information, park attendence information, and the like. Some information is donated by expected sources, such as the Ontario Ministry of Culture and Recreation, but data are also sought from less obvious sources such as the Federal Ministry of State for Science and Technology. In this example, we obtained a survey of the impacts of science on Canadians that included useful information about attitudes toward television viewing. Another social science data bank may acquire data only regarding political attitudes, such as the Roper or Gallup poll data, and the extent of leisure-related information in that data bank would be minimal. Some data banks acquire data for specific geo-political areas only, rather than for a specific theme. When the holdings of a bank are examined, new perspectives on both themes and data sources are possible. Collecting information on different aspects of leisure not only creates new perspectives and research possibilities, it creates a collection of skilled personnel. Data banks become the loci for contacts among people trained in data collection, data management, and data analysis. Exchanges among technicians, scholars, and policy-makers provides a rich environment for all. A data bank is more than just a warehouse of numeric information, it is a source of assistance, insight, and inspiration for the researcher.

Data are initially obtained in a variety of forms and structures, from simple tabular reports through decks of standard punch cards, complex multi-punched formats to edited and labeled variable spanned matrix system files. Most banks in archiving a data file, store information in a single medium (commonly magnetic tape), that can be read easily and worked efficiently. Generally, data banks do not place restrictions of the size of a data set that can be archived, and although most data sets are of a manageable size for research or re-analysis, storage can become a problem when a collection grows large. Large data sets are more often a processing problem for the researcher, than an archiving problem for a data bank. Tape storage is usually in a central computer tape library under climate control and access is protected by a stringent security system. The former is to prevent physical decomposition of the tapes, the latter to prevent unauthorized use of a data file, or the inadvertent destruction of a file by an unsophisticated user. Because data are machine readable, physical distance from the tapes, or for that matter from the computer, is not a problem. Access is accomplished through electronic communication, and all a user needs is a small computer terminal, a communication link, and a telephone number. For example, although we are hundreds of miles from the Leisure Studies Data Bank -- with a terminal, a coupler, and a telephone we could access and process any of the Bank's holdings from this room! This is not unusual. At the Central Social Science Archive at the University of Cologne, users are in a building on the campus in Cologne, but the computers and the tapes are in the city of Bonn, kilometers away. At the University of Odense at the Danish Data Archive, on the island of Fyn, one of their computers and its adjacent tape library is on the island of Zeeland, in a town north of Copenhagen. At this time many researchers have access to a network of information from a number of data banks, and such practice is becoming easier as technology is developed.

Although stored numeric data form the heart of a data bank, these would be useless without supplementary documentation which explains, for example, that the fourth through the ninth columns in each record gives the total population of a region; or that specific concentrations of magnetic oxides at a certain location on a tape indicates that information concerns swimming. Documentation may be in print or may also be machine readable. In fact, the latter is becoming more common place to permit greater access to data by users from a distant terminal.

At a minimum, documentation provides the following types of information:

1. description of data structure;
2. description of data format;
3. examples of both structure and format;
4. size of data set;
5. definitions of data elements;
6. explanation of abbreviations and codes used;
7. description of sampling design and technique, substitution procedures, etc.;
8. non-response rates and weighting procedures
9. source statements that generated data, instrumentation, tests;
10. bibliographic citations for publications based on use of the data set;
11. list of related data sets;
12. names and addresses of personnel or the agency responsible for collecting the data;
13. special information regarding access or processing.

To provide data and documentation to users, data bank staff members are called upon to perform a variety of tasks. They must provide enough information about the availability and contents of holdings and how to retrieve the required data set. Behind these obvious tasks are many hours of effort that are invisible to the user. The process of archiving a data set so that it can be used has become a highly technical and exacting skill. As a bank gains visibility and its staff matures, they are expected to serve as consultants to potential users not only with respect to retrieval of data sets they have archived, but with respect to computer software, statistical procedures, and eventually even research design. In time, they are called upon to make recommendations about the process of primary data collection and storage for eventual deposit in a data archive.

Sources of Potential Bias

Because of the wealth of data available, and the pressure on archival staff to provide ever greater detailed and technical advice, data banks specialize and refine their official mission. Specialization produces an inherent bias through the type of data available, who donates data to a bank, and who would likely use a bank. Although "leisure" as a subject is a specialization within social science, some archives have close, continued relationships with certain donors, or have continued experience with certain types of users, and consequently specialize within the field of leisure studies. One bank may become stronger in the area of the sociology of leisure, another might become more skilled in the economics of leisure; some collect data only on user patterns and visitation, still others might focus only on subsets dealing with sport.

Banks may also specialize in the scope of their data. Some are depositories of national and international studies. Others might serve a national clientele, but limit holdings to provincial or state data. Often, this is not the result of a single, conscious decision by administrators, but rather the result of responses to opportunities and requests. Whatever the cause, banks generally become more specialized over time.

In addition to bias arising from objectives and specializations of a data bank, there is bias imposed by the archivists' decisions about the quality of data and documentation. A decision not to include a particular data set is based on a number of reasons. Data may be of questionable value. Records may be missing. There may be coding errors, biased sampling, ambiguous questions, or problems with instrument design. On the other hand, qualities of a file might be adequate, at least for the original purposes of research, but documentation may be inadequate or missing, and this prevents further use of data by other researchers. A decision to archive or not archive is a technical one, made on objective grounds. However, the evaluation of whether a data set or documentation meets the objective criteria is often a subjective decision made by data bank personnel; and the quality of that decision depends upon the knowledge, skill, and ability of the specific staff.

If a data set is archived and made available for use, it is not guaranteed to be free from error or distortion. The purpose of a primary data gathering project, the wording of questions, the sampling frame and design, definitions of words and terms and how substitutions were made for non-respondents, the basis upon which a test has been standardized, interpretations or shifts in meaning by the original coder, all can cause bias in reliability and generalizability. This is why documentation is so important as a part of a data bank's holdings. As a user, you should be able to assume that the data bank staff has acquired, cleaned, stored, and retrieved data properly. You cannot make any assumption, however, about the inherent quality or characteristics of the data set without examining the associated documentation.

Access rights are another source of possible bias, not so much as a distortion in the interpretation of a particular data set as it is a distortion in the information available from a data bank. The Leisure Studies Data Bank does not accept any file that is restricted to only certain users. For example, we were given a copy of a survey of violence in a specific sport. Shortly after receiving the file we were advised that this information could not be released to all classes of potential users, and that only "approved" researchers could have access to these data. It was therefore decided to de-archive this file. The decision to include only publicly available information limits the data that can be archived, but it does ensure all potential users of availability and access. This is not always the case in other social science data banks.

The final source of possible bias is that of the donor. Here we refer not only to the types of information or questions that a collector gathers, but to the original treatment of these data. Some data are distorted before being released. In other cases data are "laundered". The process of "laundering" alters the validity and accuracy of a file. The level of aggregation of observations is another reflection of each nation's political concerns and its perceptions of privacy, social responsibility and individual rights. In North America, as in many parts of the world, it is not possible for the ordinary data user to identify specific individuals by name or address. Normally disaggregation is possible only to a subgrouping short of the individual case level. Privacy extends to protecting the identity and responses of corporations as well as individuals. Protection of identities means more than just eliminating names, addresses, case numbers, and some geocodes, it can also mean aggregating responses from small or lightly populated areas to thwart attempts to deduce the probably identity of a person or corporation. For example, if you were studying private campgrounds, and had the responses of an owner in a specific local region, state, or province that reported gross income and expenditure, you may be able to narrow identity to one or two campgrounds. To prevent this, disaggregation to a local region may be limited during the archiving process.

There is substantial variation among banks in different countries with respect to data availability. In one European nation researchers can only obtain the most generalized, averaged figures for most social statistics of their population; whereas in a neighbouring country, data files are so specific that it is possible to link individual income tax returns with responses on other social surveys to check on the validity and reliability of responses concerning income and expenditure on the social survey. Many governments retain registries of disabled persons which are available for research purposes from public agencies; this is generally not the case in North America. Some data banks regularly receive official government data for permanent archiving with the intent of providing wider access of data to researchers. Some banks have no liaison with government and have access only to academically generated data. Still others may only have access to commercially produced data. Still others may only have access to commercially produced data. Availability of social science data for research thus differs from nation to nation, and this bias influences the scope of data a researcher has for analysis.

Trends in Data Banks

One of the most important trends is the apparently contradictory tendency to become both more specific and more general. The growing specificity of a bank is the result of continued relationships with certain donors and users. A bank that develops a good working association with particular agencies, tends over time, to specialize in the information these agencies provide and need. A subtle, but important force thus slowly influences the mission of each archive. Growth of other data banks into related subjects also encourages specialization.

At the same time, there is a broadening in the perception of data files useful to researchers in a specific subject. In past years, only data files obviously related (as indicated by title of a file) to the mission of a bank would be archived. There is now a recognition that data files from unlikely sources can be of great value. For example, we have recently obtained a copy of projections used by the local public school board for educational planning. This file contains information on the number, gender, and ages of children expected in the regional population in years to come. Although this information was collected for educational planning, it is also valuable for doing feasibility studies and needs assessments for public recreation facility planning.

Another trend in data banking is toward use of more efficient and generalized technology. The newest generation of computers, and the availability of new memory technology will speed the time necessary for data processing, reduce computing costs, and increase available storage. Software packages, such as SPSS, SAS, BMD, OSIRIS, and others have been improved to match improvements in hardware and operating systems. It is now possible to work with files that would have been considered monstrous only a few years ago. The Leisure Studies Data Bank, for example, regularly assists users in working with files that contain over 1,000 variables or that have as many as 50,000 cases.

In addition to greater power and efficiency, there is a trend to greater flexibility and compatibility. Work is proceeding to develop a universal interchange file that will facilitate linking data sets or the output of one system with any of several software packages.

Just as data banks were developed to help researchers cope with data, archivists are beginning to see a need for providing assistance in helping potential users cope with the growing number of data banks. The first step is the development of a system to allow a potential user to query a bank's holdings for information about a specific topic, geographic region, or other characteristics of a data set. Because of the kind of specificity inherent in different thematic research approaches, efforts are underway to develop hierarchical modes of inquiry that may be shared among several cooperating data banks. A user at the Leisure Studies Data Bank for example, will one day be able to browse not only LSDB holdings, but leisure-related data that is part of the holdings of other universities in other countries. The significance of this system of hierarchical study descriptions or file precis is not only to allow an efficient search to be made, but to provide for common terminology and descriptions among several archives.

This growing cooperation is international in scope, and thus there is a trend in the polylingualization of archives. The international language of computers may be English, but file precis, variable labels, catalogues, and the like will need to become available in all the major languages of the world. Several data archive organizations have been established to encourage system and file exchange, cooperation and consistency among member archives. In 1965, as one example, the Council of Social Science Data Archives was established to further these goals among two dozen United States archives. Unfortunately, the differences of opinions among members was so great that the council collapsed. This is a problem and a challenge to data banks in the United States. In Canada, data archives, government, academic, and private are members of the Canadian Data Organization Committee of The Social Science Federation of Canada. A similar organization exists for Western Europe. One of the most important organizations promoting inter-archival cooperation today is the International Federation of Data Organizations, an associate member of the International Social Science Council - a UNESCO organization. Member archives are from both east and west Europe, the United States, and Canada.

Perhaps the last major trend to cite is the growing importance of data bank personnel as research consultants. Because of familiarity with different problems in research design and analysis, they acquire an overall perspective on the production and use of new data collections. Our own staff have provided consultation to a number of government and private organizations on the design of data gathering projects, on coding and weighting of data after collection, and on other related matters. Data banks also have the potential to organize groups of individual users to pursue new lines of inquiry. Because of the potential to serve as "spokespersons" for both data and computer users, these personnel can help to provide the impetus for developing computer software systems, and can become effective spokespersons for social scientists to the computer industry.

Using a Data Bank

Users of data banks fall into a number of relatively well identified groups: the unsophisticated new researcher who has not been a data user, and knows almost nothing about computers; the researcher who has had some primary research experience and some familiarity with data, but little computing experience; the experienced researcher who has considerable methodological skill, and computer literacy; the sophisticated researcher and computer user. Each of these types of users require different types of assistance from a data bank staff. The more unsophisticated a potential user is, the more likely the first few visits to a data bank will be a "fishing expedition". The more sophisticated a user is, the more specific and technical is the use of a data bank. Preliminary visits to a data bank by any user concern documentation rather than data, regardless of the level of sophistication.

In order to ensure that users have access to the archived data that will be of most use to them, documentation is usually organized on five levels.

1. File Identification -- a user may discover that a data file exists from an entry in a library catalogue, an inventory of data sets, a data bank catalogue of holdings. These citations are often cryptic, and will often include only the name of a file, and some general identifying information.

2. File Precis -- a user, upon discovering a data file that may meet research needs, then proceeds to examine more detailed information about a file. File precis are available in some library reference rooms, in data bank offices, and many are available in a hard copy form that can be mailed from a data bank to a potential user. Some banks offer machine-readable precis that can be examined on-line through an interactive computer system at a CRT terminal. A file precis describes the data, presents sampling and weighting information, indicates types of variables in the file, lists published reports based on these data, and provides a summary of the research which generated the data.

3. Source Documents -- after examining the file precis, a user may wish to consult some of the sources cited in the precis. Depending upon the practice of the bank, some data archives in collaboration with libraries have catalogued data files in the same manner as related source documents. Thus a user can examine related sources documents within a library or through inter-library loan by using the same catalogue classification codes. In many instances, a data bank will also have copies of these source documents, but these are usually for on-site use.

4. Variable Lists -- generally these are available for in-depth examination of a data file for use when designing a research plan. Hardcopy lists are usually available for each file and can be mailed to a potential user. Sometimes these lists include the source statements (from a questionaire or psycological test, etc.) which generated the variables in the data set.

5. Codebooks -- offer the user who has developed a research plan for use of a specific data set detailed information regarding the characteristics of the file structure, a complete listing of code elements specifying the variables and all values for each variable. Univariate tables in a codebook specify the frequency for each value within a variable, precise information about codes needed for processing, matrix information, CPU requirements and the like. Codebooks may be in hardcopy and sent through the mail, or may be machine readable and available on-line locally or can be used at a distance from the bank with the necessary hardware and software, and software systems documentation.

A word should be said about the nature of the files that are usually available within a bank. There are three basic types of files: raw data files, edited system files, and process produced files.

1. Raw data files are files that have been cleaned for errors, wild codes, etc. These files are stored in their cleaned "raw" form. Generally they are available to a potential user that wishes to write a special analysis programme for these data, and does not wish to use a package programme.

2. Edited system files are files that have been put through the archive process and been prepared to be used with a package analysis programme such as SPSS, SAS, OSIRIS, BMD, etc. There are often different versions of these files, such as simplified editions for new student researchers that may have some of the ordinal data grouped and labeled for simplified analysis, or the file might be reduced to a sample of cases to enhance useability when there are large numbers of records. Or a special file might have been created with an inverted matrix for use in certain factor analytic programmes by experienced researchers.

3. Process produced files are computer-generated files, based upon a researcher designed programme. Input for these files will be variables from a number of different files. The final file will be a "raw" data file, distinguished from researcher-collected data because data collection is actually internal to the computer used.

The process of using a data bank is generally the same in most locales. First a user needs to have a computer account number in order to access the required data. Access in many places today can be either through batch mode or through an interactive system. A user can either do all of his own computing or can seek assistance from data bank staff. In effect, the process is analogous to designing any research project, the only difference is that after designing the project (in this instance with the use of the data documentation) and instead of going out to collect data from households or on-site, or from some administrative reports or documents, the researcher writes a computer programme and collects the required data from the computer--data that have been stored by the data bank. Although this seems somewhat oversimplified, any working researcher knows just what all that simple formula can involve.

In many instances, there really is no need to expend the time and money to collect new data, particularly concerning leisure-related topics because there is a wealth of data available today that has never been subjected to analysis. Perhaps the biggest problem leisure researchers face today is identifying where useable data reside. Because finding these data is so difficult, the tendency for researchers is to develop research designs that include new data collection. This is not only a common practice within the field of leisure studies, but throughout the social sciences. However, as data banks become more common in universities, and are used more frequently as laboratories in the teaching of social science research, there will be a greater tendency for new researchers to think about analysis of secondary data before embarking on new data collection.

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Proceedings (in two volumes) of a national symposium on recreation trends held at Durham, N.H. on April 20-23, 1980. Volume 1 contains papers on trends in selected recreation activities and in recreation planning, policy, financing, equipment, organizational membership, lands and waters. Volume 2 includes papers on industry sources of trend data, applied trend research, the use of trend data for planning, and trend measurement.

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Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories and research units are maintained at:

- Amherst, Massachusetts, in cooperation with the University of Massachusetts.
- Beltsville, Maryland.
- Berea, Kentucky, in cooperation with Berea College.
- Burlington, Vermont, in cooperation with the University of Vermont.
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- Warren, Pennsylvania.